LITERACY AND NUMERACY PILOT IN LOW SES SCHOOL COMMUNITIES

OUTCOME EVALUATION

FINAL REPORT

Colleen Vale, Anne Davies, Neil Hooley, Mary Weaven,
Kristy Davidson and Daniel Loton

School of Education
Victoria University

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Glossary

ANOVA	Analysis of Variance
COAG	Council of Australian Governments
DEECD	Department of Education and Early Childhood Development
DEEWR	Department of Education, Employment and Workplace Relations
ESL	English as a second language
EYNRP	Early Years Numeracy Research Project
GP	Growth Point (Early Years Literacy and Numeracy assessment measurement unit)
LNP	Literacy and Numeracy Pilot
NIC	Network Improvement Consultant
NAPLAN	National Assessment Program for Literacy and Numeracy
PLT	Professional Learning Team
RNL	Regional Network Leader
SES	Socio-economic status
SFO	Student Family Occupation
VCAA	Victorian Curriculum and Assessment Authority
VCE	Victorian Certificate in Education
VELS	Victorian Essential Learning Standards

1.0 Executive Summary

1.1 The Victorian Pilot

The Literacy and Numeracy Pilot in Low SES School Communities implemented in Victoria to improve literacy and numeracy outcomes for students from low socio-economic school communities formed part of the broader reforms in the Federal Government's *Smarter Schools: National Partnerships for Literacy and Numeracy, Low SES Communities, and Teacher Quality.* It was called "Implementing a cohesive, multi-faceted approach to improving literacy and numeracy outcomes in schools and networks" and was designed to address all five areas of reform identified by DEEWR using Victoria's network initiative aimed at enabling the sharing of practices among networks of schools for improving student outcomes.

The particular objectives of the Victorian Pilot included sustainable improvement in literacy and numeracy teaching practices and outcomes for all students in the Pilot schools and sustainable improvement in leadership capacity at the school and network level to support improved practices and outcomes. One focus of this evaluation is the extent to which these objectives have been achieved in the four networks targeted for the Pilot within the eighteen months since the Pilot was implemented.

Four networks of schools in low socio-economic communities were selected for the Pilot. These were the Shepparton Network and The Ranges Network in the Hume Region, a rural region in Victoria, and the Deer Park Sunshine Network and the Wyndham Network in the Western Metropolitan Region of Melbourne.

There are 76 schools participating in the Pilot including seven secondary schools and 36 primary schools in the two Hume networks and five secondary schools, two P-12 colleges and 26 primary schools in the two Western Metropolitan Region networks. All schools in these networks are participating in the Pilot although some schools have been targeted for additional resources and support.

In general schools in these networks with the lowest socio-economic communities (ie. high mean SFO scores) and highest proportions of students below expected achievement were targeted for intervention and provided additional resources and support. The school communities of targeted schools include high numbers and proportions of Koorie students and students from refugee, new arrival and English as a Second Language (ESL) backgrounds. In some of these schools principals also reported high levels of absenteeism, significant numbers of students from itinerant or transient families and difficulties in engaging and managing students.

1.2 Scope of the Evaluation

The Literacy and Numeracy Pilot has focused on reforms that accelerate progress towards the COAG literacy and numeracy targets, particularly for low socio-economic school communities and disadvantaged students.

This Final Evaluation Report provides analyses, and assesses the effectiveness and sustainability, of the Literacy and Numeracy Pilot that was implemented in four networks in Victoria to support improvement in literacy and numeracy outcomes.

The report builds on the first process evaluation phase, and responds to the outcome evaluation phase questions, while readdressing process phase questions as appropriate. Key questions for the outcome evaluation are:

> How has the pilot impacted on student cohorts (Koorie, ESL, New Arrivals and refugee)?
> Can relatively high or low levels of student outcomes improvement be linked to particular strategies or factors?

How effective is the network and Regional Network Leader model in supporting literacy and numeracy improvement across regions? What are the limitations and advantages of this model?

1.3 Methodology

The evaluation uses a mixed methods approach involving a collaborative approach to both qualitative and quantitative methods.

We have conducted an in-depth study of five primary schools and four secondary schools that recorded high levels of growth in literacy and/or numeracy in during 2009. This involved collecting personal accounts and school and network documents, and conducting interviews, classroom and meeting visits and observations. These data provide detailed information about the approaches, strategies and interventions used by the most effective schools in the Pilot. This resulted in nine cases of effective schools.

In addition questionnaires were used to gather information about student intervention programs occurring in the targeted Pilot schools and to gather data from all principals of Pilot schools. Interviews of Regional Network Leaders and group interviews of coaches and principals were also conducted. These data provided information about how leaders and teachers developed and implemented strategies to improve literacy and numeracy outcomes. The observations and perspectives of students, teachers and leaders about the impact of these initiatives and the enabling and inhibiting factors were also gathered.

Measurements of the impact of the Pilot on student achievement in literacy and numeracy using four different assessment instruments and approaches and on students' and teachers' attitudes using survey methods with DEECD questionnaires were made.

Findings are reported for each evaluation question using results derived from the mixed methods of evaluation.

Along with the cases of effective schools we also collected qualitative data from other participants in the Pilot with the purpose of triangulating the findings arising from the cases. These data included informal interviews with RNLs, NICs and coaches and observations of various cluster and network PLT meetings. We also gathered information from principals, Regional Network Leaders, Network Improvement Consultants and coaches concerning issues of sustainability and on-going improvement.

A number of factors impinge upon the evaluation process in terms of the reliability of outcome statements and implications for ongoing research. Such factors include exactly how the combined analysis of quantitative and qualitative data is undertaken, the appropriateness and accuracy of test items, the trustworthiness of qualitative data and the understanding and application of low socio-economic factors to learning. These considerations indicate that a complicated evaluation process of the type reported by this study needs to be undertaken over as long a time frame as possible with repeated cycles of data collection and analysis. Findings that emerge at particular points should be taken as contingent until further cycles of investigation can be refined and implemented.

1.4 The Pilot: Bringing about change and improvement

In the Literacy and Numeracy Pilot in Low SES School Communities there is substantial evidence of changed practices at network, school, and classroom level that can be linked to improvement in students' literacy and numeracy outcomes.

The evaluation team noted a networked approach to improving literacy and numeracy outcomes which could be understood as a network of leaders and leadership practices, a network of teacher support

through professional learning teams, a network of policy coordination leading to whole school approaches and a network of data collection and analysis.

Various aspects of the networked approach to improving literacy and numeracy outcomes are explored in Chapter 4 where the key findings are listed as follows.

The network approach to school improvement for better literacy and numeracy outcomes for students is providing structure and support for building leadership and teacher capacity and agency. Regional Network Leaders, Network Improvement Coordinators, coaches and regional literacy and numeracy leaders are important components of this enabling structure for school improvement.

At all levels of network collaboration teachers and leaders are sharing resources, assessment data and practices, developing a shared language for discussing student learning, data, and low socio-economic culture and knowledge and collaborating for professional learning and the development of student-centred teaching practices.

The evaluation team believes the range of school, teacher and student interventions proposed for the Pilot under the five areas of DEEWR reform is better understood as a multi-faceted approach made up of numerous and various strategies at different levels in a school-centred conception of network.

The greatest challenge for the future emerges from a stark lack of enabling structures and agency that ensures parents and the broader community are part of the networked approach to improving literacy and numeracy.

1.5 Impact of the Pilot on Practice, Attitudes and Student Achievement

The impact of the Pilot on teaching practice, teachers' and students' perceptions and attitudes to the school and students' achievement was identified from the analysis of the cases of nine effective schools, annual teacher and student surveys conducted by the DEECD, and literacy and numeracy assessment outlined in Chapter 3. The findings are summarised here and reported in more detail in Chapter 5.

The multi-faceted network approaches to school improvement have enhanced teacher capacity and agency with teachers also reporting enhanced leadership support and higher levels of engagement in participative decision-making.

Teachers are using data to better understand their students' knowledge and the next point of their learning to implement differentiated or personalised teaching and learning approaches. They have observed and reported improved engagement and learning for their students.

These approaches have impacted positively on student attitudes. Students reported improved perceptions of well-being, teaching and learning and student relationships.

Improved learning outcomes are evident for primary students for both reading and number. Improvements for students in Years 3-6 have been sustained over the two school years of the Pilot and are consistent for VCE *On Demand* Assessment, NAPLAN and Teacher Judgments. Improved numeracy outcomes for students in the early years (P-2) are most evident in the first year of MOI data collection by teachers.

The Pilot is yet to make a sustained impact for improved outcomes for secondary students in reading and number and growth in achievement of secondary students lacks the consistency evident across the primary year levels.

A marked slow-down in achievement during the summer terms (Terms 4 and 1) is evident in reading and number for early years, primary and secondary students. Improved growth in student achievement

during the summer terms provides the best opportunity for sustaining and further improving growth in students' learning outcomes.

1.6 Impact of the Pilot on Particular Student Cohorts

The evaluation investigated the impact of the Pilot on the learning outcomes for low socio-economic students, Koorie students, refugee students, students who were new arrivals to Australia and students who were English language learners and met the criteria of an ESL student. Detailed findings are reported in Chapter 6.

The assessment data reveal that the Pilot has had a positive impact on these cohorts of students and especially those in primary year levels including students in the early years. This was most evident in the comparison of NAPLAN results with achievement of disadvantaged cohorts of Pilot students improving relative to all Victorian students.

In general the findings from the analysis of the EYA English Online, MOI and *VCAA On Demand* assessment results show growth in literacy and numeracy achievement for disadvantaged students was similar to other students in the Pilot schools.

The Pilot has had a positive effect on the achievement of primary and secondary refugee and ESL students in particular, for both reading and number.

1.6.1 Low Socio-economic Students

Comparisons using the MOI assessment results found that the gap between the lowest and highest SFO students remained constant during the Pilot.

Comparisons using the *VCAA On Demand* assessment results found that the achievement gap between the lowest and highest socio-economic cohorts of primary students for literacy achievement widened slightly from March 2009 to September 2010 but narrowed slightly for numeracy achievement. Students in the lowest SFO cohort are about two years by VELS scores behind students from the highest SFO cohort for reading and about 18 months for number.

NAPLAN data show that growth in achievement for the two lowest socio-economic cohorts of students in Year 3 in 2008 (and Year 5 in 2010) was higher than the other students in these grades in the Pilot for all domains except Spelling, and higher than all Victorians in these grades for all domains. These findings mean that overall the primary students in Pilot schools from the lowest socio-economic families have closed the gap with all other Victorian students, even if they have not closed the gap with the students in the Pilot schools from the highest socio-economic families.

1.6.2 Koorie Students

In the early years the gap in number achievement between Koorie and non-Koorie students closed slightly though this finding was not statistically significant.

According to NAPLAN results the Pilot has had a significant impact on number achievement for Koorie students in the primary years since growth for Koorie primary students in the Pilot was significantly greater than all Koorie primary students in Victoria. Achievement growth in each of the literacy domains for Koorie students in Pilot schools was not significantly different from that of all Koorie students.

Growth in reading achievement for primary Koorie students was significantly greater than expected for the first six months of the Pilot and growth in number achievement for primary Koorie students was significantly greater than expected for the last six months of the Pilot. From September 2009 to September 2010 the expected level of growth in achievement were realised for primary students. However there has been a decline in reading achievement for Koorie students in secondary schools.

The achievement gains made by secondary Koorie students for reading and number during Terms 2 and 3 in 2009 were not sustained. It is evident also that improved outcomes for Koorie students in Year 6 were not sustained when they entered secondary school.

1.6.3 Refugee, New Arrival and ESL Students

The Pilot has had a positive impact on the outcomes for refugee and ESL students.

Improvement in number achievement by ESL students relative to non-ESL student was statistically significant.

Reading and numeracy growth in achievement for refugee and ESL students in the primary years is significantly greater than the expected rate of growth for both cohorts of students during Terms 2 and 3 in 2009 and 2010. The gap in number achievement closed significantly between primary refugee and ESL students and primary non-refugee and non-ESL students during the period of the Pilot.

Secondary refugee and ESL students were the only cohorts of students to record significantly greater than expected growth in numeracy over the summer terms. It is not clear how this was achieved given the trends for other students. Significantly the gap in number achievement between refugee and ESL and non-refugee and non-ESL students closed during the Pilot.

Significantly, secondary refugee students also closed the gap for reading with non-refugee students.

It was not possible to analyse the impact on new arrivals over the period of the Pilot for two reasons. The number of students who were categorised as new arrivals were too few and the definition of new arrival (less than 12 months) means that membership of this cohort changed each year preventing longitudinal analysis.

1.6.4 Gender

Gender differences favoured females for reading at all levels and males for number at all primary levels. These differences were statistically significant. The gap in number achievement between females and males widened for students in the early years (P-2) and for the other primary years (3-6) during the Pilot. These findings were statistically significant.

1.6.5 Teaching practices

Teachers in Pilot schools have implemented student-centred approaches in their classrooms and these can be seen to have improved the learning of all students. While conscious of the diverse cultures of their students connecting learning with students' culture and knowledge for sustained improvement in outcomes is a continuing challenge for teachers and schools. Developing and affirming teaching and learning approaches for female and male students of low socio-economic families and Koorie female and male students requires further attention and development by teachers.

1.7 Effectiveness of Particular Interventions

The multi-faceted network approach included interventions at the network, cluster, school, teacher and student level. Networks of schools were targeted for the Pilot and schools and clusters of schools were target for intervention. Regional coaches and NICs worked with targeted schools and clusters of targeted schools in their network to coach individual teachers and support professional learning teams. Target schools also received funding to implement student intervention programs.

The targeting of primary schools realised higher rates of growth in both reading achievement and number achievement but this strategy has not yet been successful in closing the gap in achievement

between the targeted secondary schools and the non-targeted and higher socio-economic secondary schools.

A wide range of student intervention programs were implemented in targeted and non-targeted Pilot schools. Results concerning the relative effectiveness of intervention programs or modalities of these programs need to be interpreted with caution since the data collected by questionnaire was often not complete and we believe that many non-target schools who did not reply to the questionnaire are also conducting intervention programs.

Student literacy intervention programs were most effective for refugee and ESL students and the numeracy intervention programs were most effective for Koorie students and students from low socio-economic families.

The most effective student literacy intervention programs tended to be those conducted daily with small groups of students in classrooms. The most effective numeracy intervention programs were also conducted daily with small groups but outside the classroom.

Further studies involving a larger sample of students are needed to confirm the positive impact of particular intervention programs and the modalities of intervention programs in general.

1.8 Sustainability: Sustaining practice, sustaining reform

A multi-faceted approach to literacy and numeracy reform seems more appropriate than a single strategy given the complexity and inter-relatedness of learning. A key advantage of the multi-faceted approach is that it conveys to practitioners the complexity of teaching and learning and how the intricate and compounded factors that impinge on all classrooms must be navigated. This is particularly significant when considering low socio-economic families and communities and how cultural ideas and issues can be incorporated across the curriculum.

The Evaluation Team began the evaluation thinking about 'interventions' as student focused, targeted intervention programs such as Reading Recovery designed to improve student learning outcomes. While a number of this kind of intervention program is evident in Pilot schools the evaluation team now believes that intervention might be better understood as a multi-faceted approach made up of numerous and varied interventions at different levels in a school-centred conception of network.

1.9 Key Findings

1.9.1 Student learning outcomes

The LNP in Victorian government schools has led to improved learning outcomes in student literacy and numeracy for students in low socio-economic school communities. Improved learning outcomes are most evident in the primary year levels and for ESL and refugee students.

The design of the Pilot evaluation did not allow for comparison of growth in achievement during the period of the Pilot from March 2009 to September 2010 with growth in achievement for the period prior to the implementation of the Pilot nor with non-Pilot low socio-economic school communities. Comparisons made using NAPLAN data found that growth in achievement for the literacy and numeracy domains students in the primary year levels of the Pilot was greater than growth in achievement for all Victorian primary students.

Improvements in learning were observed for secondary students for particular periods or cohorts of students but these were not sustained over the two years of the Pilot or consistent across the disadvantaged cohorts of students or networks of schools.

There is an annual 'stepped' pattern in literacy and numeracy achievement. At all year levels, and in both literacy and numeracy, students make most progress in the March to September period and their growth in achievement slows down in the September to March period.

1.9.2 Student-centred, multi-faceted network

The success of the multi-faceted networks in the Literacy and Numeracy Pilot has been achieved through ***structural and practical connections*** focused on student-centred learning.

The multi-faceted and interconnected structure is shaped by:

Whole school approaches;
A network of educators in leadership positions (including network-based and school-based leaders and coaches);
A network of professional learning teams;
A commitment to building teacher and leadership capacity;
The collection, analysis and use of diverse student data.

These connected and enabling structures support:

Teaching practices;
Leadership practices;
Policy coordination;
Data collection;
The allocation of time and space for building capacity.

Within these connected and enabling structures educators are engaged in:

Building a shared language of learning based in experience;
Focused discourses about culture, knowledge, data and research;
Working collaboratively;
Seeking a deeper understanding to inform improvement.

Within these connected and enabling structures students are engaged in:

Using meta-language to describe their learning and express their ideas;
Developing independence as learners by taking risks, making choices and monitoring their own progress.

1.10 Recommendations

The following key recommendations are directly linked to the findings and provide a framework for sustaining successful structures and practices and extending and enhancing the work of the Pilot to further improve literacy and numeracy outcomes for students in low socio-economic school communities. They are briefly elaborated in Section 9.2 of the report.

1.10.1 Build on the networked approaches to improvement

Allocate funding to build on the successes of the multi-faceted network approach to improving student literacy and numeracy outcomes by maintaining, strengthening and extending the network of leaders and coaches, the network of professional learning teams and the collection and use of diverse data.

1.10.2 Incorporate community-based approaches to improvement

Initiate and incorporate a new dimension of the network approach to include parents and the broader community in improving literacy and numeracy outcomes.

1.10.3 Extend building of leadership and teacher capacity through PLTs

Professional Learning Teams (PLTs) have proved to be significant in building leadership and teacher capacity and shaping new practices. The network of PLTs provides multiple opportunities for building capacity in regards to three emerging issues:

Seeking a deeper understanding about culture, knowledge and learning in low socio-economic communities;
Gaining a deeper understanding about the pattern and possible responses to summer 'slow-down'; and
Building the capacity of all teachers to integrate literacy and numeracy across the curriculum.

2.0 Introduction

This section of the evaluation includes a brief outline of the Victorian Literacy and Numeracy Pilot in Low SES[1] School Communities 2009-2010, the questions framing this final evaluation report and a brief summary of the Process Evaluation Report completed at the end of the first phase of the Pilot (Vale, et al, 2010).

2.1 The Victorian Pilot

The Literacy and Numeracy Pilot implemented in Victoria to improve literacy and numeracy outcomes for students from low socio-economic school communities formed part of the broader reforms in the Federal Government's *Smarter Schools: National Partnerships for Literacy and Numeracy, Low SES Communities, and Teacher Quality.*[2] It was called *Implementing a cohesive, multi-faceted approach to improving literacy and numeracy outcomes in schools and networks* and was designed to address all five areas of reform identified by COAG using Victoria's network initiative aimed at enabling the sharing of practices among networks of schools for improving outcomes and planning to improve opportunities for learning (Dawkins, 2009).

The five COAG areas of reform that were brought together in the Victorian Pilot were:

- Leadership and whole school approaches
- Investments in lifting teacher capacity
- Effective use of student data
- Student-centred approaches and interventions
- Use of broader community and parental engagement strategies.

The sixth DEECD area of reform was:

> Network approach to school improvement and reform.

The rationale for the multi-faceted approach was outlined in the Progress Report (DEECD, July, 2009)[3] and underpinned by the following assumptions:

- *Additional resourcing is required to assist schools in lifting literacy and numeracy achievement*
- *Literacy and numeracy improvements will be evident and attributable to participation in the pilots*
- *Sustained improvement requires a comprehensive, multi-faceted approach at the school and network level*
- *Networks of schools within a region that take responsibility for all students will drive student improvement strategies.*[4]

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[1] SES stands for socio-economic status. Through this report we use socio-economic (SE) rather than SES except when referring to the title of a program or publication.

[2] DEEWR, http://pilots.educationau.edu.au/

[3] DEECD, 2009, Literacy and Numeracy Pilots in Low SES School Communities 2009-2010, Outcome Evaluation Progress Report, July 2009.

[4] DEECD, 2009, Literacy & Numeracy Pilot Evaluation Specification, #1.7, p. 1.

According to the DEECD the key objectives of the Victorian Pilot are to achieve:

- *Sustainable improvement in literacy and numeracy outcomes for all students in the pilot schools.*
- *Sustainable improvement in literacy and numeracy teaching practice in pilot schools.*
- *Sustainable improvement in leadership capacity, at the school and network level, to support changed teacher practice and improved literacy and numeracy outcomes.*
- *Sustainable capacity for schools and networks to deliver this comprehensive, multi-faceted approach to improving literacy and numeracy beyond the pilot.*[5]

The focus of this evaluation is extent to which these objectives have been achieved in the four networks targeted for the Pilot within the eighteen months since the Pilot was implemented.

Four networks of schools in low socio-economic communities were selected for the Pilot. These were: Shepparton Network and The Ranges Network in the Hume Region, a rural region in Victoria, and the Deer Park Sunshine Network and the Wyndham Network in the Western Metropolitan Region of Melbourne.

There are 76 schools participating in the Pilot including seven secondary schools and 36 primary schools in the two Hume networks and five secondary schools, two P-12 colleges and 26 primary schools in the two Western Metropolitan Region networks. All schools in these networks are participating in the Pilot although some schools have been targeted for additional resources and support.

In general schools in these networks with the lowest socio-economic communities (ie. high mean SFO scores) and highest proportions of students below expected achievement were targeted for intervention and provided additional resources and support. The school communities of targeted schools include high numbers and proportions of Koorie students and students from refugee, new arrival and English as a Second Language (ESL) backgrounds. In some of these school principals also reported high levels of absenteeism, significant numbers of students from itinerant or transient families and difficulties in engaging and managing students.

2.2 Scope of the Evaluation

The Literacy and Numeracy Pilot has focused on reforms that accelerate progress towards the COAG literacy and numeracy targets, particularly for low socio-economic school communities or disadvantaged students.

This Final Evaluation Report provides analyses, and assesses the effectiveness and sustainability, of the Literacy and Numeracy Pilot that was implemented in four networks in Victoria to support improvement in literacy and numeracy outcomes.

The report builds on the first process evaluation phase, and responds to the outcome evaluation phase questions, while readdressing process phase questions as appropriate. The questions that framed the evaluation for the first process evaluation phase along with those for the second outcome evaluation phase are listed in the table below. There is considerable overlap in some of these questions and the table indicates the chapter in which each of the questions will be addressed in this report. The key outcome evaluation questions to be answered in this report are in bold print.

[5] DEECD, 2009, Literacy and Numeracy Pilots in Low SES Communities, Progress Report, July 2009, p. 3.

Table 1: Questions framing the Evaluation of the Victorian Literacy and Numeracy Pilot

Process Evaluation Questions	Outcome Evaluation Questions	Chapter
How did the Regional Network Leaders, principals and teachers develop and implement effective literacy and numeracy improvement strategies? What contextual factors influenced strategy selection and implementation success?		4
What changes in attitudes, behaviour or practice in approach to literacy and numeracy teaching and learning are evident in pilot schools?		5
How do individual students and their families experience the approach adopted by the schools within the network?		5
	In terms of student outcomes/performance data, have the interventions had an impact? If so, how much impact?	5
	How has the pilot impacted on student cohorts (Koorie, ESL, New Arrivals and refugee)?	6
Which interventions provide or support the greatest improvement in student outcomes in literacy and numeracy?	Which interventions have had the greatest (and least) impact and are those that had the greatest impact scalable?	7
	Can relatively high or low levels of student outcomes improvement be linked to particular strategies or factors?	7
Which interventions are most effective in raising student achievement in literacy and numeracy in low SES schools and for students from Koorie, ESL, New Arrivals and refugee backgrounds? In what circumstances are these improvements achieved?		7
What factors facilitate or inhibit the effectiveness of implementation of the network approach to improving literacy and numeracy? How might implementation be improved across the networks and school sites?	How effective is the network and Regional Network Leader model in supporting literacy and numeracy improvement across regions? What are the limitations and advantages of this model?	8
What is the potential value of a multi-faceted approach to literacy and numeracy? (i.e. its impact on other elements of the school		8

program, unintended influence of the pilots)

	What level of resourcing and support is required to support improvement in students' literacy and numeracy outcomes?	8

2.3 Findings from the Process Evaluation Report

Data regarding the implementation and impact of the Pilot for the Process Evaluation Report were gathered between six and eight months after the Pilot was implemented. These data included documents, personal accounts and roundtables gathered from teachers, principals, Regional Network Leaders, coaches and other regional leaders. Literacy and numeracy assessment data for students from P-10 were also gathered and analysed (see methodology section).

The findings from the initial process evaluation and the interim outcomes evaluation are briefly reported below.

2.3.1 Regional Implementation of the Pilot

More principals may have embraced the objectives and strategies of the Pilot had they been involved in making decisions about how the Pilot was to be implemented for schools in their network.

The regions' school improvement policies and professional learning programs provided significant springboards for the Pilot in each Region.

2.3.2 Network Approach

Networks provided opportunities for teachers and leaders to develop a common language with which to share practices for improving outcomes in literacy and numeracy.

2.3.3 Multi-faceted reforms

There was considerable enthusiasm among teachers, leaders and principals for whole school approaches to reform, coaching, network-based professional learning activities and school-based professional learning teams.

School leaders were most effective when they had been actively engaged in professional learning activities in their schools, monitored practices in their school classrooms, and established school structures and processes to enable collaborative learning, planning and reflection for their teachers at the school, cluster or network level.

There was little evidence of schools engaging with parents and community as a component of a multi-faceted approach to improving student learning and outcomes.

2.3.4 Impact on teaching practice

Literacy and numeracy leaders and teachers were starting to rethink their classroom practices and engage in rich conversations about student learning, and beginning to create better learning environments and opportunities for students by changing their practice.

Teachers, especially primary teachers, were beginning to use a range of assessment data to personalise or differentiate teaching and learning in literacy and numeracy. There was a diversity of approaches being implemented.

2.3.5 Impact on literacy and numeracy achievement March 2009 to September 2009

The analysis of student achievement data for the period from March 2009 to September 2009 found significant improvement in the achievement of students in the Pilot, especially for reading in the primary years, number in the early primary years and for number in the primary years 3-6 in the Hume Region.

In particular, the average growth in achievement in reading was significantly higher than the expected growth for a six-month period for:

- students in each year level in the primary years 3 – 6;
- secondary students in the Wyndham Network;
- Koorie secondary students (Shepparton network), who recorded the highest growth in average achievement;
- primary and secondary refugee and ESL students; and
- primary and secondary students in the two lowest socio-economic groups.

The average growth in achievement in number was significantly higher than the expected growth for a six-month period for:

- P-2 students for each of the number domains assessed in the MOI;
- students in years 3, 4 and 5 for the Pilot;
- students in year 6 in the Hume Region
- students in year 7 in the Shepparton network;
- newly arrived, refugee and ESL students in years 3-6; and
- primary students in the two lowest socio-economic groups.

Koorie students from the early years to the lower secondary years were at least keeping pace with expected growth levels of achievement in literacy and numeracy but mean scores showed that they were still up to one year behind other students.

There was a reduction in the proportion of students performing below the expected level in primary year levels 3-6 for both literacy and numeracy.

Fewer than expected students completed assessment in both March and September 2009 compromising the reliability of the study, especially comparison of achievement between students in targeted and non-targeted schools.

2.3.6 Impact on literacy and numeracy achievement March 2009 to March 2010

The Interim Outcomes Evaluation reported on student achievement from September 2009 to March 2010 as well as from the twelve-month period from the beginning of the Pilot in March 2009.

Annual growth in reading achievement for primary students from years 3 – 6 was significantly greater than the expected annual growth rate while annual growth in number achievement was at the expected level. However, the findings showed that growth in student achievement is not consistent throughout the school year resulting in less than expected annual growth for secondary students. The slow-down was clearly evident in all years and for low socio-economic students and Koorie students. In the period since the publication of the interim report we have invited principals of the Pilot schools to reflect on these findings and provide insight into and explanation of this phenomenon.

In the current evaluation achievement and growth in achievement is tracked for the eighteen-month period for students in the Pilot including particular cohorts of students who are a key focus of the Pilot. In this report previous findings will be revised for the cohort of students who participated in all four assessments over the 18 months, from March 2009 to September 2010, and with respect to growth for the last six months, that is from March 2010 to September 2010.

3.0 Methodology

3.1 Introduction

The evaluation uses a mixed methods approach involving both qualitative and quantitative methods. A collaborative approach resulted in cases of nine schools that recorded high levels of growth in literacy and/or numeracy. In addition questionnaires were used to gather information about student intervention programs occurring in the targeted Pilot schools and to gather data from all principals of Pilot schools. Interviews of Regional Network Leaders and group interviews of coaches and principals were also conducted. These data provided information about how leaders and teachers developed and implemented strategies to improve literacy and numeracy outcomes. The observations and perspectives of students, teachers and leaders about the impact of these initiatives and the enabling and inhibiting factors were also gathered.

Measurements of the impact of the Pilot on student achievement in literacy and numeracy using four different assessment instruments and approaches and on students' and teachers' attitudes using survey methods with DEECD questionnaires were made.

Findings are reported for each evaluation question using results derived from the mixed methods of evaluation.

3.2 Cases of high growth schools in the Pilot

3.2.1 Schools selected for in-depth study

During term two and three of 2010 we conducted an in-depth study of nine schools in the Pilot. Our objective was to explore more deeply the six areas of reform as they were being implemented in the networks, schools and classrooms. The following criteria were used to select schools for the in-depth study:

- Recorded higher than expected growth in either reading or number from March 2009-September 2009;
- Target school with support from regional coaches and/or intervention funding;
- High SFO or large numbers of students belonging to one of the disadvantaged cohorts (Koorie, new arrival, refugee or ESL students)
- Participated in qualitative data collection in 2009 (personal accounts and/or roundtable)
- Recommended by the RNL
- Include at least two secondary schools.

Following discussion with the DEECD Pilot Evaluation Management Committee we selected the schools listed in Table 2 and invited them to participate in the in-depth study. Some schools selected for the in-depth study did not meet each of the criteria.

Table 2: Schools selected for in-depth study

Network (Region)	Primary Schools	Secondary Schools
Deer/Park Sunshine Network (WM)	Deer Park North P.S. Ardeer South P.S.	
Wyndham Network (WM)		Galvin Park S.C. Hoppers Crossing S.C.
Shepparton Network (Hume)	Gowrie St. P.S. St. Georges Rd. P.S.	McGuire College
The Ranges Network (Hume)	Seymour P.S.	Euroa S.C.

The purpose of developing these cases of schools and their interaction with other schools in their network is to document and understand the approaches, strategies and interventions used by those schools that have been most successful at improving literacy and/or numeracy outcomes in the first 12 months of the Pilot. We will investigate the approaches, strategies and interventions used for each of the DEEWR five areas of reform of the Pilot. These areas are:

- Leadership and whole school approaches,
- Investments in lifting teacher capacity,
- Effective use of student data,
- Student-centred approaches and interventions, and
- Use of broader community and parental engagement strategies.

A sixth area of reform is the DEECD strategy for "spreading best practice" the network approach (Dawkins, 2009). Hence the cases investigate the way in which structures and relationships within the network and between schools have facilitated effective implementation of these reforms.

3.2.2 Methods of data collection and analysis

We used collaborative methods in the collection and analysis of data as we worked with each of the schools in the in-depth study to create a case of practice. While the methods were adapted from one school to another to suit each context, there were four broad activities which informed the construction of the school cases:

Articulating personal accounts
Collaborative analysing of collected accounts
Participating and observing in a range of learning environments
Collecting documents and other artefacts.

Personal accounts were collected from: teachers; school-based literacy and numeracy leaders; principals; network-based literacy and numeracy coaches and leaders; and Regional Network Leaders. Some accounts were written and emailed to the evaluation team, some were hand-written in a roundtable environment and others were gathered in audio-taped conversations. Each individual drew on their own experiences to provide a personal account about literacy and/or numeracy and responded to the following questions:

Can you please give an account of what you have been doing to improve literacy/numeracy outcomes for students in your class/school/network?
How did you come to do that?

> What observations have you made about the success or otherwise of your approach/es?

In some locations this was followed by a collaborative analysis activity in which the author of each account highlighted the key words and phrases and crafted statements that indicated what they had learned about improving literacy and/or numeracy outcomes. At this point some groups also constructed concept maps as they talked about the common threads in their accounts. (The detailed process of gathering personal accounts is included in Appendix A.)

Where possible we also sought to include students' voices in the evaluation. We designed the collaborative research with students to ensure that: we had their active agreement; they had the ability to withdraw participation at any time; and they had a choice about how they participated (Thomas and O'Kane, 2000). We assured the students that there were no right or wrong answers and we engaged in a range of data collection activities including word-wheel brainstorming, drawing maps/plans, taking photos and talking about the photos. (This process is detailed in Appendix A.) Through these activities students were given an opportunity to interpret and explain their own data, work alone and in groups and through the different activities they were able to refine their analysis. In collecting personal accounts from students the key questions were:

> What is the school, your teacher or someone else doing to help your learning in literacy/numeracy?
> Tell us how that works. What normally happens in the lesson/session?
> What difference is this making for you about being at school, and what you hope to achieve at school?

An integral aspect of understanding the complexity of each in-depth school included participating in and observing in multiple learning environments. This included visiting classrooms to observe literacy and numeracy lessons and attending professional learning activities. Classroom visits were sometimes informal and at other times part of a program of focused classroom observations or literacy/numeracy walks. Professional learning activities could be distinguished by location – they could be in schools, in neighbourhood groupings as well as at the cluster and network level – and by those participating. Some were focused specifically on literacy or numeracy and some were targeted to those undertaking specific leadership roles. This meant participating and observing sessions designed for teachers, coaches and principals.

Throughout the engagement with each of the in-depth schools, documents of leadership and teaching practice were collected. Documents included Annual Implementation Plans, curriculum planning records, materials used in PLT meetings, minutes of meetings and other artefacts including photographs and video clips.

The personal accounts, records of individual and collaborative analysis, the notes from observations and the collected documentation were analysed qualitatively and synthesised to create a written case, or portrait, of each school. The cases were drafted by the evaluation team who then took the drafts back to each of the in-depth schools for clarification, expansion and validation.

3.3 Other qualitative data gathered from the networks and schools

3.3.1 Student intervention programs used in the Pilot

To gather information about the nature of student intervention programs a questionnaire on student interventions was distributed to all schools in the Pilot. The items and response form were designed to gather data about the purpose, content and structure of each student intervention program as well as how students were targeted for the program. The questionnaire is included in Appendix B. Targeted schools in each Pilot Network were expected to complete these questionnaires. These programs are discussed in Chapter 7 along with the achievement outcomes for students who participated in these programs.

3.3.2 Exploring issues of sustainability

Along with the cases of effective schools we also collected qualitative data from other participants in the Pilot with the purpose of triangulating the findings arising from the cases. These data included informal interviews with RNLs, NICs and coaches and observations of various cluster and network PLT meetings. We also gathered information from principals, Regional Network Leaders, Network Improvement Consultants and coaches concerning issues of sustainability and on-going improvement.

We designed a 'reflection protocol' for each principal to complete (Appendix C). It was based on protocols that we observed NICs and coaches using with leaders at cluster and network meetings. We asked principals to record success, goals and challenges for sustainability and on-going improvement with respect to each of the areas of reform in the multi-faceted network approach to improving literacy and numeracy outcomes. Principals completed these individually, or collectively, during cluster or network meetings in each Network.

At these meetings we also invited principals to discuss growth outcomes for September 2009 and March 2010 for the Pilot and their network. We sought the perspectives and interpretations of principals, RNLs and NICs about the growth data that revealed lower than expected growth for this period.

3.4 Measuring impact and relative effectiveness of the Pilot and Pilot strategies

3.4.1 Measuring impact on student achievement: Assessment tools

Assessment data were collected for literacy and numeracy achievement using online assessment tools provided to teachers by the DEECD. Assessment was conducted at six-month intervals in March 2009, September 2009, March 2010 and September 2010. The online assessment tools were:

- Prep – 2: Early Years Assessment of English Online (EYAEO) - VELS score[6],
- Prep – 2: *Mathematics Online Interview* (MOI) - Growth Point scores[7], and
- Yr 3 – 10: *VCAA On Demand Adaptive Tests for Reading and Number* (VELS score; students recording a score <2.0 VELS were assigned a score of 1.75 VELS and students recording a score >5.9 VELS were assigned a score of 6.25 VELS)
- Schools scheduled these classes of students to undertake these assessments during each of these months according to availability of online facilities and other school activities. Hence

[6] Because of technical problems with this online tool, only results for Prep students in 2010 were collected.

[7] Growth point scores were identified and developed by the Early Years Numeracy Research Project (Clarke, et al., 2001).

there was variation in the actual dates students from the same year level across the Pilot completed these assessments.

Two other measures of student achievement were used:

- *NAPLAN* achievement scores for each student in reading, writing, spelling, grammar and punctuation, and numeracy for students in Years 3, 5 and 7 in 2008 and in Years 5, 7 and 9 in 2010. The VCAA provided both the scale score and the band score for each student in the Pilot, and the mean growth in scale score for all Victorian students and all Koorie students in Victoria for the two-year period using the results matched for each student.
- *Teacher Judgment* scores for English and Mathematics. Means scores for each year level for each school were calculated for each reporting period from June 2008 to June 2010. The median school mean score was used as a measure of student achievement by teacher judgment for each network and the Pilot overall. Analysis of these data was completed by staff of the DEECD. Detailed results are recorded in their report (see Appendix E).

3.4.2 Measuring impact on student, teacher and parent attitude: Tools and analysis

The DEECD collects student and teacher attitude data annually. The following instruments were used to gather these data:

- *Staff Opinion Survey*. The survey includes a number of scales for two main domains measuring attitude, organisational climate and motivation, including:
    - Supportive leadership
    - Role clarity
    - Professional interaction
    - Participative decision making
    - Goal congruence
    - Appraisal and recognition
    - Professional growth
    - Individual morale
    - School morale
    - Individual distress
    - School Distress
- *Student Attitudes to School Survey*. The survey reports on six factors:
    - Stimulating learning
    - School connectedness
    - Student motivation
    - Learning confidence
    - Connectedness to peers
    - Classroom behaviour
- *Parent Opinion Survey*. The survey is distributed to a randomly selected sample of parents in each school.

Analysis of the data collected for Pilot schools using these instruments was completed by staff of the DEECD. Median scores for each scale for 2008 and 2009 were compared. Median scores for the Pilot and networks were also compared with the Victorian median. The findings are detailed in an attached report (see Appendix F). As these surveys are conducted near the end of the school year 2010 data could not be included for this evaluation of the Pilot.

3.4.3 Measuring impact of student achievement: Calculating growth in achievement

On-line assessment instruments

Expected growth in student achievement is identified in the DEECD Curriculum Continuum and measured by VELS points, such that every six months students are expected improve their learning by 0.25 VELS points. Expected growth for 12 months (one school year) is 0.5 VELS points and expected growth for two (2) school years is 1.0 VELS point. Since data were gathered firstly in March 2009 and finally in September 2010, expected growth in student achievement for this period is 0.75 VELS points.

Individual student results for each assessment period were matched. Growth in student achievement for each six-month period (March 2009 to September 2009, September 2009 to March 2010, and March 2010 to September 2010) and for the eighteen month period of the Pilot (March 2009 to September 2010) was measured and tested for statistical significance using Analysis of Variance (ANOVA). A t-test was used to compare the mean growth score with expected growth for the particular length of time.

For numeracy in Years P-2, mean difference in "growth point scores" was calculated for students in years P-2. We used the results from the Early Years Numeracy Research Project (Clarke, et al., 2001) conducted in 2001 as a benchmark for evaluating student growth in achievement rather than VELS since the growth points in this instrument have not been matched with VELS. The EYNRP reported growth for the target schools for an eight month period (from March to November) in each year of the study. We calculated the equivalent rate of growth for a six month period to use for comparison.

Analysis of growth in achievement was conducted for all students in the Pilot at each year level and for the cohorts of students of particular interest to the Pilot objectives. For each cohort group ANOVA was used to compare growth with other students (eg. Koorie with non-Koorie) and t-tests were used to compare growth with expected growth. Growth in student achievement has also been calculated for each network and for each school where there were sufficient data to provide reliable results. Line graphs are used to map student achievement over time and illustrate growth.

We have also recorded the proportions of students achieving below expected levels, well below expected levels and those achieving above and well above expected levels for each data collection period for P-2 literacy, 3-10 literacy and 3-10 numeracy. These are reported using bar graphs.

NAPLAN

Similarly students' NAPLAN results were matched and growth in student achievement measured and tested for significance using ANOVA. Growth in scale score at the Pilot and network level for each year level cohort was compared for statistical significance with the Victorian mean growth in scale score using a t-test.

3.4.4 Measuring relative effectiveness: Comparing growth in achievement for a range of factors

We have used ANOVA tests to compare rate of growth in reading and/or number achievement for:

- Targeted and non-targeted schools to find out whether the intervention through the provision of funding and other support has impacted on growth;
- Student intervention programs to find out whether particular intervention programs are more effective than others; and
- Attributes of student intervention programs to find out which of the attributes of these interventions contributed to growth in achievement.

3.5 Reporting the findings

Results of the analysis of assessment data are reported in tables showing mean scores (standard deviations), mean growth and results of significance tests and illustrated in line graphs of means scores for each year level, or student cohort group, or intervention factor. Box and whisker diagrams are used to show the distribution of growth in achievement to illustrate the spread growth among students. Histograms (vertical bar graphs) are used to illustrate comparison of growth for cohorts of students.

The distribution of student achievement scores for each of the assessment periods will be illustrated using bar graphs. These graphs will map the proportion of students achieving well below, below, at and above, and well above over the period of the Pilot.

Table 2 is a rubric for interpreting significance tests conducted for growth in reading and number achievement. We have used a traffic light graphic to aid interpretation. Statistical tests (repeated measures and t-tests) were conducted to determine whether progress was made and if this progress was at, above or below the expected rate of progress irrespective of a student's beginning level of achievement. These tests determine whether differences in mean scores occurred by chance or represent real improvement for students in the Pilot group being analysed.

In a six-month period students are expected to make improvements in achievement scores equivalent to 0.25 VELS points and for the period from March 2009 to September 2010, 0.75 VELS points. A growth score that is statistically greater than 0.25 can be interpreted as improvement in achievement that is closing the gap between schools performing below expectation (that is, the achievement score was below the expected VEL score at the beginning of the Pilot), and schools performing at or above the expected level. For some student groups there were insufficient data for reliable comparison so these results are not reported.

Table 3: Rubric for interpreting growth in achievement for *VCAA On Demand* tests

	Statistical comparison	Meaning
*	Growth is significantly greater than 0 ($p<0.05$)	On average students have made improvement from March to September.
▲	Growth is statistically significantly greater than 0.25 VELS points in 6 months ($p<0.05$).	There has been improvement, that is, success in closing the gap because growth is greater than expected
■	Growth is not statistically significantly different from 0.25 VELS points in 6 months ($p<0.05$).	Growth is approximately equal to the expected level. Students have been progressing but it is not clear whether there has been improvement or not without knowing growth in achievement for the previous period or by comparing with another cohort of students.
▼	Growth is statistically significantly less than 0.25 VELS points in 6 months ($p<0.05$).	There is no improvement and the gap is widening because growth is less than the expected level of growth for the period.

We have also used statistical inference tests to compare mean growth or mean scores between groups of students, for example between Koorie and non-Koorie students in the Pilot using VCAA OnDemand data and between Pilot students and all Victorian students for NAPLAN data. These tests have been

used to assess impact and also to identify which strategies or interventions have been successful. Table 3 is a rubric for interpreting results for these comparisons.

Table 4: Rubric for interpreting statistical comparisons for groups of students and factors

	Statistical difference	Meaning
★	Difference is significantly greater than 0 ($p<0.05$)	The gap between groups is closing since on average the targeted group of students has performed better than the comparison group.
●	No difference between groups or factors ($p>0.05$).	The targeted group of students has performed the same as the comparison group.
★	Difference is significantly less than 0 ($p<0.05$).	The gap between groups is widening since on average the targeted group of students has performed worse than the comparison group.

3.6 Student participants and participation in assessments

3.6.1 Students of interest in the Pilot

Since the Pilot was funded to improve literacy and numeracy outcomes for students in low socio-economic school communities assessment data will be analysed to evaluate the impact of the Pilot for cohorts of students known to be under-achieving or vulnerable to under-achievement. We were provided with demographic data for each student in the Pilot schools enabling impact to be measured and analysed for the following cohorts of students:

- Koorie students (Indigenous students in Victorian)
- Low socio-economic students (two lowest school family occupational categories: N - unemployed & pensioners for 12 months or longer; and D - machine operators, hospitality staff, assistants, labourers and related workers)
- Students who had newly arrived to Australia (students who had been in Australia less than one year and had arrived between 1st March, 2009 and 28th February, 2010)
- Refugee students
- ESL students (students who had been in Australia less than 5 years on 1st March 2009 and had a language background other than English).

3.6.2 Participation in assessment

The following tables document the numbers of students who have participated in each of online tests for reading and number for students in years P-2 and the VCAA *OnDemand Adaptive Tests* for Reading and Number assessments for students in years 3-10.

Table 5: Participation in Early Years Assessment of English Online (Prep, 2009) and Mathematics Online Interview (Years P-2, 2009-2010)

	EYA English Online (Prep)		Maths Online Interview*	
Achievement tests	N	%	N	%
March 2009	767	30.35%	2996	27.16%
September 2009	767	30.35%	3287	29.80%
March 2010	NA		6481	58.76%
September 2010	NA		6304	57.15%
All four assessments (March & September, 2009 & 2010)	NA		1482	13.44%
Last two assessments (March 2010 and September 2010)	NA		5618	50.93%

* Data refers to the number and % of students who completed interviews for the domain of counting.

Participation rates presented in Table 5 show that just less than one-third of students enrolled in Prep in 2009 completed both the March and September EYA English Online in that year. The instrument was discontinued while amendments were made so that it could not be used in 2010. Participation rates in MOI are based on data provided for students who completed the items for the counting domain. Over one-quarter of students enrolled in the Years P-2 completed the MOI in 2009. Participation doubled in 2010 with more than one half of the P-2 students completing it in 2010 with one half completing both assessments in 2010. Only 13% of students completed all four MOI interviews. Participation rates for the other domains of MOI are very similar (see Appendix J).

Table 6: Participation in *VCAA Adaptive Tests* (Reading and Number), Years 3-10 (N=25,586)

	Reading		Number	
Achievement tests	No.	%	No.	%
March 2009	6,850	35.8%	4,689	24.5%
September 2009	9,313	48.7%	7,910	41.4%
March 2010	14,704	57.5%	13,125	51.3%
September 2010	13,210	51.6%	13,138	51.3%
All four assessments (March & September, 2009 & 2010)	4,148	16.2%	2,205	8.6%
Last two assessments (March 2010 and September 2010)	10,904	42.6%	10,320	40.3%

Participation by students in the Pilot schools from Years 3-10 varied from 25% to 58% over the course of the Pilot. Participation was not distributed evenly across the year levels and was lowest for students in Years 9 and 10. About 80% of students in Years 3 – 6 completed the September 2010 literacy and numeracy assessments; participation for students in Years 7 and 8 varied from 65% to 79%. It is not clear where these proportions are indicative of attendance rates at these schools but teachers and principals reported transience of the student population as a significant issue for classroom teachers in these low SE school communities.

Secondary teachers reported that the Online Adaptive Tests were not able to show growth for high achieving students in Years 9 and 10, and did not assess the dominant content for these year levels, especially for number. Many Pilot schools therefore chose not to include Year 9 and/or Year 10 students.

The proportion of students completing all four assessments was not as high as planned. Firstly not all Pilot schools participated in the first round of assessment in March 2009. Typically schools who were not receiving additional resources tended not to participate in the first round and many Pilot schools in the Western Metropolitan Region were not aware that they needed participate in the numeracy assessment. Participation was much higher from September 2009.

The population for the longitudinal evaluation therefore is the Pilot students who were in Years 3-9 in 2009 and in Years 4-10 in 2010 and the sample is constituted mostly of the targeted Pilot schools. These schools tended to be those with the lowest socio-economic school communities, high Koorie populations and highest proportions of students achieving below the expected level.

3.7 Validity and reliability

There are a number of limitations in the methods used to evaluate the Pilot. These include specific and more general constraints regarding the instruments used to assess student achievement and to collect demographic information about the students for quantitative analysis as well as limitations with the qualitative methods.

Firstly, schools were asked to complete the online assessments with their students over a period of four weeks at the end of Term 1 and Term 3 in each year of the project. Especially in the first year of the study additional time was granted for schools to complete these assessments with their students. Hence timing of *VCAA OnDemand* and Online testing was not consistent for all schools with the consequence that the period for which growth was measured is less or more than six months for some students and schools.

VCAA On Demand Adaptive instruments were not well designed to measure achievement at the bottom and top of the range. Firstly, there may be insufficient questions in the on demand instruments to reliably assess the highest and lowest achieving students. Secondly, the lowest and highest achievement scores are recorded as either <2.0 or >5.9 VELS. We have assigned arbitrary values, 1.75 and 6.25 but these may under or over-estimate actual scores. Hence growth may be under or over-estimated for students at these ends of the VELS standards. Thirdly, students who have already reached >6.0, and this could apply to many students in Year 10, cannot record any growth at a subsequent test period meaning that growth for these students cannot be calculated. As a consequence findings regarding growth for students in year 3 and year 10 should be interpreted cautiously.

Our findings regarding growth using the *MOI* and *On Demand* instruments also need to be viewed with some caution as we experienced quite a deal of difficulty in matching student achievement data from one assessment period to the next. Since students in Victorian government schools do not have unique identifiers but only school-based identifiers (CASES IDs), students who moved schools needed to be matched. We were assisted in this task by staff of DEECD who matched students who moved schools when transferring from Year 6 to Year 7 and when one group of schools in a regional town merged during 2010. However, a number of students were not able to be tracked and matched. Moreover, we observed a high number of students who moved schools during the period of the study accounting for one of the reasons why progressively smaller proportions of students could be matched over the eighteen-month period even when schools participated in each assessment.

Tests may not be the best measure of student achievement and only capture student's knowledge and skill at a particular point in time. Teachers are using complex assessment approaches to monitor student learning and identify students' learning needs. Their professional judgement of student achievement is therefore included in the evaluation of the Pilot. These data were collected using qualitative methods of the cases and more formally through the analysis of Teacher Judgement Achievement Scores for students in Pilot schools.

A number of factors impinge upon the evaluation process in terms of the reliability of outcome statements and implications for on-going research. Such factors include exactly how the combined analysis of quantitative and qualitative data is undertaken, the appropriateness and accuracy of test items, the accuracy of qualitative data and the understanding and application of LSES factors to learning. These considerations indicate that a complicated evaluation process of the type reported by this study needs to be undertaken over as long a time frame as possible with repeated cycles of data collection and analysis. Findings that emerge at particular points should be taken as contingent until further cycles of investigation can be refined and implemented.

4.0 The Pilot: Bringing about change and improvement

4.1 Introduction

In the Literacy and Numeracy Pilot there is substantial evidence of changed practices at network, school, and classroom level that can be linked to improvement in students' literacy and numeracy outcomes. The focus of this chapter is to report the strategies that have been implemented to bring about change and improvement in the four networks participating in the Literacy and Numeracy Pilot.

The evaluation questions are:

> How did the Regional Network Leaders, principals, coaches and teachers develop and implement effective literacy and numeracy improvement strategies?
> What contextual factors influenced strategy selection and implementation success?

In order to answer these questions we drew on the qualitative data collected during:

- The process of creating School Cases (including interviews, personal accounts, email exchanges, observations, photographs, maps, word wheels and documents)
- School Case validations (including collaborative theorising and concept mapping)
- Group interviews with principals and school-based leaders and questionnaires that sought their perceptions about successes, goals and challenges for the future
- Interviews with and documents collected from RNLs, NICs and network-based literacy and numeracy coaches.

4.2 Network and school improvement approaches

This chapter reports our findings under six key headings:

- The network approach (Region, Cluster, targeted, non-targeted, geographic)
- Leadership and building leadership capacity
- Building teacher capacity
- Whole school approaches
- Using student data
- Engaging parents and community.

4.2.1 The network approach

The evaluation team noted a networked approach to improving literacy and numeracy outcomes which could be understood as a network of leaders and leadership practices, a network of teacher support through professional learning teams and a network of policy coordination leading to whole school approaches and a network of data collection and analysis.

The network of leadership positions extends out from the classroom and this means that teachers and students are supported by school-based literacy and numeracy leaders and coaches, principals, network-based literacy and numeracy coaches as well as Regional Network Leaders, Network Improvement Consultants and School Improvement officers. Within the scope of their role this network of leaders is responsible for facilitating reflection, introducing new ideas and practices and challenging and supporting classroom teachers. At the school level there is a high level of appreciation for the support of the network-based educators/leaders and the allocation of resources by the region. They

particularly recognise the contribution that coaches, RNLs and NICs make in conducting coaching days and providing feedback to teachers through focused classroom observations (including instructional rounds and literacy/numeracy walks).

The second dimension of the networked approach includes professional learning teams at the school, neighbourhood, cluster and network levels. Each forum is focused on building teacher capacity and provides a highly valued space/place for professional conversation and the development of a shared language for inquiring into teaching and learning, collaboration and inspiration to create and share new knowledge, programs, practices and resources.

The third dimension of the networked approach is evident in whole school approaches to improving children's learning that involve consideration of context, activity shaped by key policies, a commitment to focusing on literacy and numeracy and improvement through the introduction and development of consistent classroom approaches connected to research and the literature.

The fourth dimension of the networked approach involves the collection, analysis and use of data to understand explicit learning needs and inform planning for differentiated teaching practice. As one principal noted, 'sharing network data has made us all more aware of where we sit in relation to other clusters/networks and regions and it pushes us to maintain continuous improvement.'

Each of these aspects of the networked approach to improving literacy and numeracy outcomes is explored in greater detail below.

4.2.2 Leadership and building leadership capacity

Leaders at the school, network and regional level are advocating and supporting analysis, critique and articulation of school values and practices and transforming classroom teaching practices for literacy and numeracy. Principals of a number of the in-depth schools place particular importance on knowing and understanding their students and communities and driving the review of school values to enhance student engagement and well-being.

Leaders at all levels are collaborating and promoting collaboration among teachers in Professional Learning Teams (PLTs) in the schools, in clusters and in networks to transform classroom teaching. Principals in the effective schools are insisting on time and space for these PLT meetings and ensuring that they occur within the school and at the cluster and network level. We noted that in all these schools leaders are responding to teachers' professional learning needs while in some schools leaders are promoting and enabling self-directed and team-directed professional learning. For example Seymour PS leaders have revitalised their professional learning by reconceptualising their staff meetings as learning circles and creating an opportunity for all staff to improve their understanding and enhance their capacity to improve students' reading and writing.

Principals, assistant principals and school literacy and numeracy leaders are also actively involved in teaching. They assist with individual assessment and the documentation and compilation of assessment data for teachers' use and also model effective teaching practices. All school literacy and numeracy leaders and coaches are either classroom teachers or teach individual or small groups of children participating in the school's literacy and numeracy intervention programs.

Some principals and school literacy and numeracy leaders are collaborating with other leaders in their cluster to share ideas, initiatives, resources and accountability for improved outcomes. The Shepparton Primary Neighbourhood group, consisting of three primary schools (Gowrie St PS, St Georges Rd PS and Wilmot Rd PS), exemplifies this practice.

Building of leadership capacity is facilitated through distributed leadership practice within schools, through the appointment of highly credentialed instructional leaders in schools and networks, through professional learning for leaders in the cluster, network or region and also through the Bastow Institute.

At least two recently appointed secondary school literacy leaders (one an Assistant Principal) in the in-depth schools had experience of teaching in both the primary and secondary schools. They brought knowledge of approaches to literacy teaching and assessment and intervention programs such as Reading Recovery to secondary contexts. Principals also value the knowledge of coaches and teachers who have had other school improvement roles within the regions when they are allocating/making selections for leadership positions in their schools. A number of recent Assistant Principal and Literacy or Numeracy Leadership positions have been filled by regional coaches.

Principals, especially secondary principals whose discipline specialisations do not include English and literacy or Mathematics and numeracy, value the instructional leadership programs delivered by the regions (for example, Common Curriculum in the Hume Region and Blue Print in Western Metropolitan Region). These programs and the Regional Network Leaders are supporting principals to align strategies for improvement across the network and region to transform classroom practices in their schools. Coaches and Network Improvement Consultants are providing critical support for School Literacy and Numeracy Leaders. They are supporting these leaders by providing resources, protocols and approaches for use with colleagues in professional learning team meetings and through coaching. School literacy and numeracy leaders are developing knowledge and skills in coaching through participation in coaching training provided by the Bastow Institute.

A distributed leadership model has been deliberately implemented in a number of schools in the in-depth study. Middle school literacy and numeracy leaders are collaborating with other middle-level leaders and school leaders to share practices and resources and develop teaching approaches. Principals are using this model of leadership as a means of building teacher capacity and distributing responsibility for sharing learning and accountability to sub-school professional learning teams. Coaches are important resources for these professional learning teams and provide support to the middle level and school leaders in these meetings. Principals are also using a distributed model of leadership for succession planning in their school.

Goals for building leadership capacity reported by principals across the networks include further development of the confidence of PLT leaders to lead and direct their PLTs and succession planning through on-going development of coaching skills and transfer of leadership within schools. One principal articulated a goal that all teachers be “leaders in research and development in their own classroom.”

Challenges for sustainability and continuing improvement include introducing, developing and retaining high quality literacy and numeracy teaching and learning leaders and developing “the collective capacity amongst a small number of neighbourhood schools.” Principals would like to see continuance of regional and network staff to support the work of school-based literacy and numeracy leaders and hope to be able to continue to fund in-school coaches from their SRP budget even when enrolments fluctuate.

4.2.3 Building teacher capacity

Successful regional and network strategies have been implemented across the Pilot. These are facilitated by the RNLs, NICs, regional consultants, regional leaders and coaches providing valued support to schools. There is an acknowledgement that responsibility for improvement within networks is shared. This is in contrast to previous approaches that emphasised competition between schools. Increasing collaboration between schools includes both the primary and secondary sectors. In addition it is recognised that encouraging professional reading and reflection on practice is crucial to on-going improvements in building teacher capacity. Regional and Network support for the PLTs has been central

to this endeavour. At both Regional and Network levels, teachers have also received support to collect and analyse data and student work samples in order to plan for differentiated and personalised learning. This is seen as contributing to the development of teacher capacity.

Successful school-based strategies for building teacher capacity include the establishment of a widespread focus on knowing students well. This is combined with seeing student success as a goal for improving teaching capacity. Professional Learning Teams (PLTs) are credited with meeting the learning needs of teachers – through collegiality and through providing the necessary forum for professional discussion focusing on the success of students. These PLTs have been central in establishing consistent approaches across all classrooms. Appointing effective teachers to specific/targeted leadership and teaching positions to focus on areas of greatest need has also been widely recognised as a means of promoting teacher capacity.

4.2.4 Whole school approaches

There is a widely held view that in order to improve literacy and numeracy outcomes it is necessary for the whole school to be 'on board', supportive and involved. To this end, teachers and principals in the Pilot are focusing on the local context and seeking a shared sense of purpose. Leaders talk about achieving consistency and alignment across the school in regard to goals and expectations and they believe this needs to be embedded in the whole school AIP. Principals recognise the challenge of seeking continued improvement and are looking for an increase in staff clarity about literacy and numeracy. They want to see more staff engaged in a common curriculum and using similar and consistent approaches and they believe one indicator of this shift is the development of a common language across the school.

One whole school strategy for achieving the goal of shared purpose is through whole staff participation in regular conversation in professional learning team meetings focused on literacy and/or numeracy. In some schools this practice is just beginning while in others it is well established and in these circumstances it is possible to see learning area meetings run as professional learning sessions which are an integral part of the school's weekly/fortnightly program. The challenge is to make room in the school week in order to engage in the development of improved teaching practice, undertake succession planning, exchange ideas and introduce new ideas. Further challenges associated with sustaining integrated professional learning teams include the allocation of funding for further training, replacement teacher money and providing opportunities on an on-going basis to induct new staff and maintain the focus for all staff.

A whole school approach makes the most of available resources and this might include both technical and human resources. On the technical side, participants in the Pilot have stressed the importance of using ICT to visually engage students and further argued that they should become authors and not just users in an electronic environment. Referring to human resources, schools have described the importance of sharing expertise and identified a range of people who might make a valuable contribution including parents, speech therapists, tutors and regional leaders.

Collaborative whole school planning is a central feature of taking a whole school approach and in Pilot schools they have planned for sustainability by developing action and strategic plans, level plans and AIPs that contain targets. Planning, prioritising and managing takes place in study groups and team meetings. Teachers share their expertise to improve planning for explicit and differentiated learning.

Some schools are involving students in the planning and goal setting processes and conducting student focused meetings to tailor programs. There is also a belief in some schools that it is important to develop an ILP for each student deemed to be at risk. But at this stage none of these practices involving students is consistently implemented. There are also schools that are encouraging students to take

control of their learning. They are inviting them to take risks and 'have a go'. They want them to see the relevance of their learning, make choices, respond to high expectations and have a belief that they can succeed.

Taking a whole school approach means that literacy and numeracy are the basis upon which everything is built and everyone needs to take responsibility and be involved – the Principal, the whole leadership team, all teachers, students and parents. Some schools have set out to ensure that all teachers understand that they are teachers of literacy and numeracy and provide support for the inclusion of literacy and numeracy across the domains.

In classrooms students are engaging in high quality learning tasks selected and designed to meet their needs and promote higher order thinking. Most primary and secondary schools are identifying a daily literacy and/or numeracy block which is free from interruptions, scheduled early in the day and designed to increase fluency and meet specific students' needs. This tends to be a longer period of time and a more consistent practice for literacy than numeracy. In some schools they have organised multi-age groupings while in others an entire year-level cohort is timetabled at the same time so that six teachers can work across five groups, maximising the support for students. There are efforts to personalise lessons and match students' learning styles and needs. Most, if not all, schools incorporate a NAPLAN preparation focus and notice that it is important to synchronise the order of topics with timing of the NAPLAN test.

Alongside the whole school approaches to literacy and numeracy there is a range of programs designed to promote student wellbeing and engagement. Teachers argue that it is the parallel programs that lead to improved learning outcomes.

4.2.5 Using student data

Principals and teachers appreciate and utilise a range of data in detecting trends of student learning. Such data include national, state and school tests, work samples, observation, diary entries, rubrics and homework. State and national population test data have not been available until recently to underpin school consideration of their programs and student learning. A central feature of this process is teacher professional judgement in making sense of data to inform planning and practice. This also involves ongoing assessment conversations arising from data analysis. It is recognised that student assessment data are only one aspect of developing a teaching and learning improvement plan; other aspects include initial discussion about teaching and learning, data gathering, assessment conversations, redesigning curriculum and teaching, and evaluation of the overall process. Critiquing and identifying limitations of assessment tools and processes and building and adapting new instruments is an emerging issue that will strengthen achievement data analysis over time.

4.2.6 Engaging parents and community

While schools express support for parent and community participation, the establishment of appropriate procedures is difficult. Primary schools in particular have informal daily contact with some parents and involve parents in occasional activities, for example, multicultural days and student concerts. Enabling systematic participation of parents and community, for example in literacy, numeracy and curriculum change, through appropriate structures and processes is a difficult, long-term task.

Schools have difficulty in respecting and connecting with the culture, language, history and experience of low socio-economic communities. Not only is this so in Australia, but is seen in similar countries around the world. This may be due to a view of schooling which sees the passage of information from teacher to child as being essentially a one-way process where school knowledge predominates. To reconstruct this arrangement, so that learning is framed by general ideas, theories and practices but

emerges from the experience and culture of participants, is a fundamental reconceptualisation of schooling and learning. Establishing structures and relationships with parents and communities so that a greater understanding of the knowledge, history and language of low socio-economic experience can inform curriculum and teaching is an imperative for all schools.

4.3 Key findings

The network approach to school improvement for better literacy and numeracy outcomes for students is providing structure and support for building leadership and teacher capacity and agency. Regional Network Leaders, Network Improvement Coordinators, coaches and regional literacy and numeracy leaders are important components of this enabling structure for school improvement.

At all levels of network collaboration teachers and leaders are sharing resources, assessment data and practices, developing a shared language for discussing student learning, data, and low culture and knowledge and collaborating for professional learning and the development of student-centred teaching practices.

The evaluation team believes the range of school, teacher and student interventions proposed for the Pilot under the five areas of DEEWR reform is better understood as a multi-faceted approach made up of numerous and various strategies at different levels in a school-centred conception of network. We will discuss these ideas further in Chapter 8 when considering structures of sustainable practice and improvement.

The greatest challenge for the future emerges from a stark lack of enabling structures and agency that ensures parents and the broader community are part of the networked approach to improving literacy and numeracy.

In the next Chapter we describe the way in which the multi-faceted network approach to school improvement has impacted on teachers' classroom practices and their perceptions of school organisation. We also describe the impact of these practices on students' attitudes and literacy and numeracy achievement.

5.0 Impact of the Pilot on Practice, Attitudes and Student Achievement

5.1 Introduction

In this section we report on the way in which the different elements of the multi-faceted approach have changed teachers' approach to literacy and numeracy teaching in classrooms and their attitudes to the school organisation. We also report on how these practices in turn have affected students' attitude towards learning literacy and numeracy and school in general and the extent to which achievement in literacy and numeracy has been improved for all students in the Pilot and for students at each year level in the Pilot.

We address the following evaluation questions:

> What changes in attitudes, behaviour or practice in approach to literacy and numeracy teaching and learning are evident in pilot schools?
> How do individual students and their families experience the approach adopted by the schools within the network?
> In terms of student outcomes/performance data, have the interventions had an impact? If so, how much impact?

In this section we take the meaning of 'intervention' in its broadest terms, that is the programs, initiatives and practices implemented at the Region, Network, Cluster and School level, in what we've described as school-centred network approaches that were designed to improve achievement outcomes for students. In Chapter 7 we will evaluate the various specific student intervention programs implemented in Pilot schools.

5.2 Literacy and numeracy teaching in effective schools

Our findings about what has changed in classroom practices are based on the in-depth study conducted with nine selected effective schools in the Pilot. These findings are confirmed by accounts collected through interviews and collaborative conversations and data collection with principals and network-based coaches and leaders in various forums of the Pilot.

First we describe how teachers are using assessment data for tracking, planning and reviewing, then move to focus on what teaching looks like in the effective Pilot classrooms and how teachers are developing student-centred learning approaches for literacy and numeracy.

5.2.1 Using data for planning teaching

There is an increased awareness about the value of achievement data for improving literacy and numeracy learning outcomes. This is evident across networks with the development of assessment schedules and the use of data in all professional learning forums. Principals report that teachers and students are changing their attitudes to testing.

A key feature of the Pilot is a new relationship between collecting and analysing student data and then using what has been learned to support planning for student-centred teaching literacy and numeracy. Principals note that instead of 'feeling threatened' and 'hiding data and moving on', teachers are sharing what they have learned, putting it in context and using it to shape improvements.

Using whole school approaches, teachers and leadership teams are using a common approach that includes gathering a wide range of data (as described in 4.3.6) to track growth in achievement, inform

planning and check on the success of teaching approaches. One of the challenges is to find and fund strategies that allow teachers to gather data over a shorter period of time.

By looking deeply at data to truly understand it and making the data more "alive" schools and teachers are better equipped to improve practice. By collecting a range of information teachers are:

Learning about different aspects of student growth
Closely monitoring and tracking student achievements over their school life
Gaining a clearer/more complex picture of student achievement
Triangulating results from different assessment instruments
Creating a class profile.

Based on data analysis teachers are:

Engaging in informed planning
Determining levels of need
Identifying the next learning points
Grouping students
Designing differentiated learning tasks and activities to meet learning needs

Teachers also report that added support (either classroom-based or withdrawal interventions) based on analysis of data assists students and encourages teachers to work to a consistent set of strategies, or what is commonly referred to by teachers as "working on the same page." In this way the Pilot has supported teachers in understanding and meeting the needs of individual students through broad-based, student-centred, whole school approaches.

In addition to the value of monitored progress and informed planning teachers also recognise the value of data in checking whether their strategies are working.

5.2.2 Literacy teaching: Student-centred approaches

There is a strong view that a successful literacy program requires having a 'clear, uninterrupted teaching time' over an extended period of time. During this time teachers are: team teaching; engaging in focused, explicit teaching in flexible groupings; drawing on the support of coaches; and using what has been learned through reading and discussions in professional learning teams. Teachers in successful schools use the same professional language regarding teaching and learning and work within a consistent set of teaching strategies shaped by the idea of putting the 'student at the centre thinking'. The whole-small-whole lesson planning pattern is common practice.

Taking a student-centred approach means that teachers advocate for all students and meet their learning needs through a differentiated more personalised program. They adapt curriculum and teaching to meet the needs of particular cohorts of children and construct broad-based, student-centred teaching strategies rather than narrow, instructionist approaches. Such latter approaches may be inferred from a particular approach to mass testing, but in the Pilot run counter to the use of diverse student data and the professional discourse that arises in meeting student learning needs.

There is widespread support across both primary and secondary sectors for engaging students in purposeful literacy activities. This is connected to a view (emerging in the secondary sector) that all teachers are teachers of literacy. In the literacy classroom students are reading material to suit their interests and abilities engaging in diverse activities including Reading Conferences, Independent Reading and using Classroom Libraries. In addition, they are participating in guided reading, shared reading, read aloud and guided reciprocal reading. Students are also being encouraged to understand and take responsibility for their own learning. For example, the provision of a 'literacy wall' chart where

students requiring support are grouped over time throughout the year. Students are being included in the literacy process to the extent that they use 'meta-language' to describe their learning. That is, they can see themselves as readers, writers and authors and understand the process they are working through.

There are various options for supporting students who are achieving below the expected levels. Out of the classroom, Reading Recovery is common while in the classroom there is an increase in individual one-on-one teaching which is leading to an increased opportunity for students to develop a sense of ownership over their own learning. These strategies (discussed in more detail in following sections) are recognised as allowing teachers to focus on accumulating knowledge about students' literacy, and then targeting specific individual needs. Teachers and principals note that the success of these approaches is dependent on staff knowing what literacy skills to look for especially in higher order comprehension skills.

Classroom resources vary. Some schools are introducing a range of programs such as 'Corrective Reading', 'Intrepid', 'Sound Waves' and 'Lexiles'. And there is an increasing trend to using technology-based activities to enhance skills in both reading and writing. ICT pedagogies depend on the availability of hardware including interactive whiteboards and high student/computer ratios and an awareness of pedagogical possibilities. Activities vary from structured programs such as Accelerated Reader to more open-ended activities such as internet research activities that incorporate reading and writing.

Support for teachers is an essential ingredient in developing student-centred approaches. School-based coaching is identified as central to supporting the development of this knowledge and the role of PLTs is noted in both regions as being crucial to improvements in literacy teaching across the whole school. Regular scheduled meetings with network-based literacy coaches are also cited as contributing to this success.

5.2.3 Teaching mathematics (numeracy): Student-centred approaches

The *Hume Numeracy Strategy* and *Hume Common Curriculum* continued to guide teachers' practice during 2010 in the Shepparton and The Ranges Networks. This year Hume Regions' mathematics resources, including the regional numeracy leaders, were devoted to The Ranges Network (in 2009 it was the Shepparton Network). A focus on numeracy in the Western Metropolitan Region was limited to four schools in the Wyndham Network where additional resources were provided to support an intervention program (see Section 7).

This year teachers in the targeted primary schools, with the support of numeracy leaders and coaches, have continued to make their lessons purposeful and focused on children's "point of need" (Zone of Proximal Development, Hume Numeracy Strategy). The Number Fluency Assessment Framework is an important resource for planning student-centred lessons. Teachers in effective primary schools (in-depth study schools in the Shepparton Network) are using a common lesson structure (whole - for consolidation of knowledge and focus on language, small – differentiated tasks or cooperative learning, whole – reflection on learning). Using the Hume Number Fluency Tasks as a model, teachers are designing their own number fluency tasks to differentiate their teaching. Children, especially the higher achieving children, who know the structure of their mathematics lessons, are starting to differentiate the number fluency tasks to challenge themselves. Teachers in secondary schools monitor students who are using number fluency tasks to ensure their engagement.

Primary teachers state that developing children's understanding of language in the context of numeracy and mathematics is important for their learning. They are using 'think aloud' when modelling mathematical reasoning and problem solving and using discussion to assist children to understand language. Teachers are also making much more use of concrete materials to "transfer strategies to new

situations" in all year levels. Coaching and further professional learning about scaffolding mathematical thinking is needed in areas such as place value and rational number that are difficult to teach.

Teachers in both primary and secondary schools are including problem solving in their mathematics lessons as a means to developing understanding and thinking in mathematics as well as to engage their interest. The *Maths300* resource and its problem solving heuristic are being used in some schools. Open-ended tasks are also being used in a number of the schools that participated in the in-depth part of the evaluation but not all teachers are confident using these tasks as a means of differentiating their teaching or for problem solving.

Secondary teachers are moving away from being dependent on one textbook in order to meet the needs and engage more students in mathematics. Teachers at one secondary school are strong advocates of group learning through investigations and problem solving tasks. They use this approach to enhance team building, team leading and dispute resolution as well as to complete the task. They believe that students learn through interaction with others, especially from students who are more capable, which improves their attitude toward mathematics. Individual secondary teachers are actively encouraging students to monitor their own progress by keeping their own record of their daily practice tests and choosing tasks to meet their own needs and interests as a means of developing their self-concept in mathematics.

Daily engagement in mathematics learning is strongly advocated. Teachers in some primary schools have rescheduled the mathematics hour to earlier in the day to avoid interruptions. At least one secondary school that streams students according to their achievement includes additional lessons in the week for the lowest achieving groups. Taking more time on each concept, going slower and building on what students know is strongly advocated whether the students are in streamed classes or not. "Streaming" (or setting) needs close analysis of growth in student achievement over time as there may be short-term gains that are not sustained in the long run. Researchers have criticised streamed classes for not leading to enhanced learning for the lowest achieving groups because teachers tend to have low expectations of students in the lowest streams even when trying to take a positive stance on addressing their students' learning needs (Bartholemew, 2003; Watson, 2006; Zevenbergen, 2003).

In general there has not been a major focus on numeracy in the Western Metropolitan Region and while some resources have been provided for targeted schools in the Wyndham network, teachers and leaders did not report on changing practices for improvement of numeracy outcomes when we conducted the in-depth study of their school. At least one secondary school in the Deer Park Sunshine Network was supported by a numeracy coach to improve numeracy outcomes. The teachers and regional numeracy coach described a numeracy program that they developed and implemented across their multi-campus school in a conference presentation and publication (Reilly, Parsons and Bortolot, 2010). The program uses Scaffolding Numeracy in the Middle Years assessment and learning tasks to develop multiplicative and proportional thinking, reciprocal teaching for problem solving tasks and differentiated content lessons.

Principals report that sustaining student-centred approaches for teaching and learning mathematics and numeracy depend on continuing to "develop teacher leadership expertise to lead groups of colleagues", make differentiated practice common to all mathematics classrooms, enhance teacher capacity to use student data for planning, and, especially in secondary schools, "attracting highly qualified teachers with good instructional skills" to Pilot and other low socio-economic schools. Some principals reported that their students respond very positively to the use of particular online commercial mathematics sites and they are seeking financial support to sustain access for their students.

5.3 Impact on teachers' attitudes

Changes in teachers' perceptions of school organisational climate within the first year of the Pilot (that is from 2008 to 2009) are reported in detail in Appendix F: Report on Organisational Climate: Opinions of Staff, Parents and Students prepared by staff of the Central Office of DEECD. The results of the annual staff survey are reported by Network rather than the Pilot as a whole. Changes in attitudes varied across the networks but there were some general findings indicating a positive impact on teachers' attitudes.

Relative to all teachers in Victoria, the attitudes of teachers in the Pilot networks regarding organisational health were more likely to have remained unchanged or to have improved from 2008 to 2009.

Improved organisation health was reported by teachers in all networks for the elements Empathy (Supportive Leadership) and Participative Decision Making, a component of Engagement, and there were generally improvements in the components for Engagement across the networks.

Two networks showed consistent improvement in staff motivation from 2008 to 2009: Shepparton and Wyndham. Improvement in staff perceptions of Outcomes (elements regarding the learning environment and student behaviours) was also recorded consistently for these two networks. Improvements in staff perceptions of Outcomes were recorded for five of the nine elements of this scale for the Deer Park Sunshine Network and The Ranges Network.

These findings concur with the analysis of teachers' personal accounts and roundtable discussions reported in the Process Evaluation. At the end of the first year of the Pilot we noted differences in teachers' perceptions of the Pilot in the way that they constructed their concept maps. For some teachers there was "a sense of dissatisfaction and lack of control with the Pilot being designed centrally and teachers and schools having little say about the implementation or distribution of funds" (Process Evaluation, p. 34). Data gathered in 2010 for the cases of successful schools indicated that teachers and leaders were very positive about the network approach and the five areas of reform that also align with the elements of organisational health. Teachers and school leaders also commented positively on the outcomes for students in terms of their motivation and engagement with learning and participation in the classroom and school decision-making. Responses from principals of non-targeted schools suggest that support, including structures and resources, provided to targeted schools would contribute to the organisational health of their schools.

5.4 Impact on students' behaviours and attitudes

Changes in students' attitudes within the first year of the Pilot (that is from 2008 to 2009) are reported in detail in Appendix F: Report on Organisational Climate: Opinions of Staff, Parents and Students prepared by staff of the Central Office of DEECD. The responses to the annual student survey were analysed by Network and year level.

The student survey gathers students' opinions about their well-being, teaching and learning and student relationships. In the first year of the Pilot very positive impacts were identified with improved perceptions for each of the six components of the scale for each year level cohort. "Almost universally, for each factor and year level in each network, the students' opinions changed from around average in 2008, to the 90th percentile in 2009."

5. 5 Growth in student achievement in all Pilot schools

5.5.1 Literacy P-2

Achievement in literacy for students assessed using the Early Years Assessment of English Online is reported below. Mean scores (VELS) and mean growth in achievement (VELS) for 2009 are reported in Table 6 and the distribution of scores are illustrated in Figure 1.

Students in the Preparatory year are expected to achieve VELS Level 1 by the end of the school year, and hence expected growth in achievement is 0.5 for six months. Students in the Pilot schools exceeded the expected level for six months, though the actual time period was seven months.

Growth in achievement for students in Year 1 and in Year 2 was also significantly greater than the expected level. Students in Year 2 reached the expected VELS level of achievement by October.

Table 6: Mean scores and growth in reading achievement for students in years P-2, March 2009-October 2009.

Yr (2009)	N	March 2009	Oct 2009	Mean Growth	Sig < 0.25
P	269	0.357	0.916	0.5587	▲ *
1	238	0.986	1.430	0.4441	▲
2	260	1.412	2.028	0.6162	▲

*Note growth in grade Prep is compared to 0.5 for the period of March to October

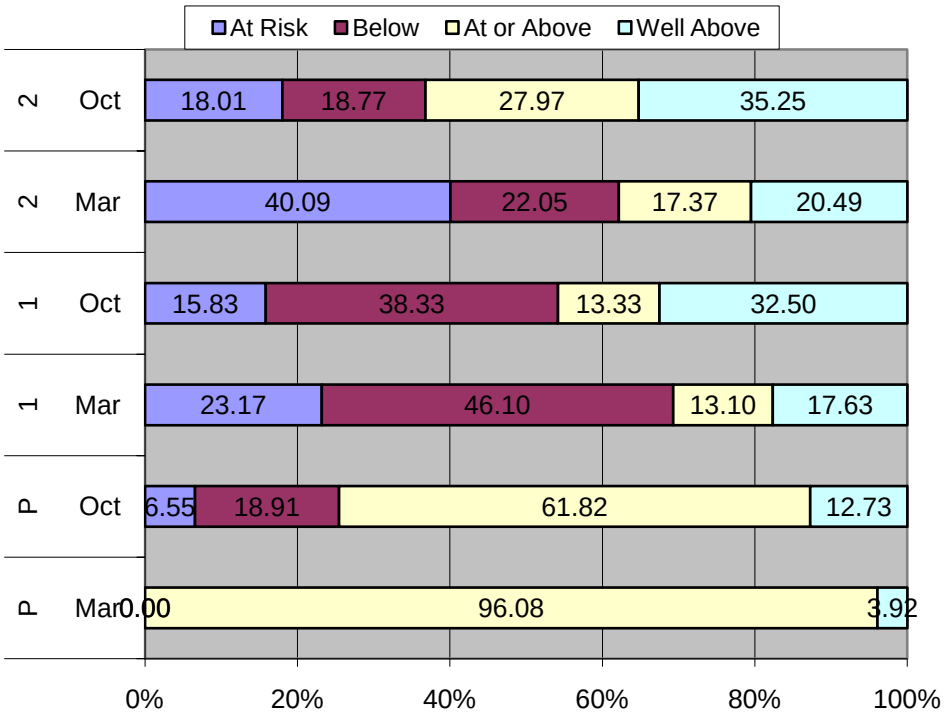


Figure 1: Distribution of literacy achievement scores (VELS) for students in Years P-2 March and October, 2009

Figure 1 shows that almost three-quarters of Preparatory students were at or above the June VELS benchmark by October 2009 and almost 13% of students were well above (more than one year ahead of) this benchmark. However this level of success is not evident in the October scores for students in Year 1 or Year 2. More than 56% of students in Year 1 are below the expected level in October. Many fewer students are in this category in Year 2 (37%).

Teaching from March to October has had a positive effect on the distribution of achievement as the proportion of students who are well above is greater in October than in March for each year level and likewise the proportion of students below the expected level and 'at risk' (more than one year behind the expected level) is lower in October than for March.

Though we were not able to collect achievement data for these year levels after October 2009, these distributions indicate a summer slow-down in achievement that was reported for other Year levels in the Interim Outcomes Report and evident in the results presented later in this Chapter for students in Years 3-10.

5.5.2 Numeracy P-2

Student achievement in numeracy for the early years (P-2) was assessed using the MOI. Mean scores and mean growth is measured by "growth points" and results for students in the Pilot are recorded in the Tables 7-9 and Figure 2.

Mean growth in achievement for students who completed all four assessments for each of the early years' numeracy domains is recorded in Table 7. It tracks progress for students who were in Prep or Year 1 in 2009 and in Year 1 or Year 2 in 2010. For these students the highest level of growth for each of the four domains was achieved in the period from March 2009 to September 2009. In this period growth in achievement was much greater than the equivalent six month ENRP benchmark for counting, place value and addition and subtraction and similar to the ENRP benchmark for multiplication and division.

Growth in achievement slowed substantially in all four domains during the summer terms, from September 2009 to March 2010. While growth increased again for the period from March 2010 to September 2010 it was approximately half that achieved for the same period in 2009 and lower than the six month equivalent ENRP benchmark. For multiplication and division growth was about half the ENRP six month equivalent benchmark. Overall the initial high rates of growth in achievement were not sustained over the 18 month period.

Growth in each six month period from March 2009 to September 2010 is greatest for counting. The next highest rates of growth are recorded for addition and subtraction followed by place value. Growth is lowest for multiplication and division. These findings are to be expected since development occurs earlier for counting and additive thinking than place value and multiplicative thinking (Clarke et al, 2001). More detailed analysis was conducted for the domains of place value and addition and subtraction.

Mean scores and growth in place value and addition and subtraction achievement for each year level are recorded in Tables 8 and 9 and illustrated in Figure 2. The results show the pattern of growth described above that is, higher than benchmark growth followed by much lower than benchmark growth followed by lower than benchmark growth. These trends are evident in Figure 2. The slow down in growth for September 2009 to March is more marked for students progressing from Year 1 to Year 2, than for those progressing from Prep to Year 1 in both place value and addition and subtraction.

For place value knowledge the highest rate of growth for a six month period was achieved by students who were in Year 1 in 2009 (0.984 GPs), however students in the same year level in 2010 recorded the lowest rate of growth (and lower than the benchmark) for the March to September period (0.498 GPs).

Likewise for addition and subtraction achievement the high rate of growth achieved by Year 1 students in 2009 was not repeated for Year 1 students in 2010 (1.218 GPs compared with 0.732 GPs). However, the mean growth point scores for place value and addition and subtraction recorded for students in March Year 1 in 2010 (1.32 and 1.77 respectively) are higher than the mean growth point scores for students in March 2009 (0.91 and 1.33 respectively).

These findings suggest that the Pilot has enabled students in the early years to catch up (that is close the gap) to the expected level of achievement in each of the numeracy domains and indicates that teachers have used the assessment data to improve the achievement outcomes of under-performing students.

This finding is further supported by the results for the much larger cohort of students who completed both MOI assessments in 2010 and illustrated in Figure 2. (Mean scores and growth for this cohort are recorded in Appendix H.) The rate of growth for this cohort from March 2010 to September 2010 is equivalent to or higher than the ENRP benchmark for six months and higher than the rate of growth achieved by the cohort completed MOI assessments for March 2009 and September 2009.

Furthermore, the mean growth point scores for place value and addition and subtraction in March 2010 were in the expected range for students in Years Prep, 1 and 2. In September 2010 the mean growth scores indicate that students in these year levels were approaching the expected range of scores. However with the likely slow-down in growth from September to March these students are unlikely to be within the expected range for the beginning of Year 1, Year 2 and Year 3 respectively for both place value and addition and subtraction. These findings accord with Teacher Judgements (Figure 1, Appendix E) which found median school achievement scores in the Years 1 and 2 to be slightly below the expected level for numeracy.

Variance in results for each network also suggests that the impact of the Pilot was strongest during the first year in which data were collected by schools. Growth in achievement for March 2010 to September 2010 for students in each of the networks is recorded in Appendix H. Growth in achievement varied according to network, year level and numeracy domain for March to September 2010. In general growth in achievement was highest in the Deer Park Sunshine network for each domain and for students in Years 1 and 2. However growth in achievement for Prep students in the Deer Park Sunshine Network was lower than growth in for Prep students in each of the other networks for all domains and lower than ENRP benchmark for all domains except counting. Mean growth for students in the Wyndham, The Ranges and Shepparton networks for March to September 2009 were higher than growth recorded for March to September 2010 and higher than ENRP benchmark for each domain (Process Evaluation Report, 2010, Appendix 8 and Appendix 9).

Table 7: Mean growth in number achievement for students in Years 1 and 2 in 2010 (March 2009 – Sept 2010)

		2009		2010		Mar 09 – Sept 09	Sept 09 – Mar10	Mar 10 – Sept 10	ENRP	
	N	March Mean	Sept Mean	March Mean	Sept Mean	Mean Growth	Mean Growth	Mean Growth	Bench mark[a]	6 month[b]
Counting	1482	1.62	2.90	3.28	4.05	1.282*	0.381*	0.766*	1.07	0.80
Place Value	1304	0.56	1.46	1.65	2.17	0.898*	0.196*	0.514*	0.74	0.56
Addition & Subtraction	1420	0.79	1.94	2.28	2.94	1.151*	0.346*	0.652*	1.09	0.82
Multiplication & Division	1284	0.75	1.49	1.61	1.98	0.739*	0.116*	0.369*	0.97	0.73

[a] ENRP benchmark for an eight month period (March – Nov); [b] the six month equivalent ENRP benchmark

Table 8: Growth in place value by year level in 2010 (March 2009 – Sept 2010)

		2009		2010		Mar 09 – Sept 09	Sept 09 – Mar10	Mar 10 – Sept 10	ENRP	
Year (2010)	N	March Mean	Sept Mean	March Mean	Sept Mean	Mean Growth	Mean Growth	Mean Growth	Bench mark[a]	6 month[b]
1	655	0.25	1.08	1.32	1.81	0.837	0.232	0.498	0.74	0.56
2	625	0.91	1.89	2.06	2.59	0.984	0.173	0.523	0.74	0.56

[a] ENRP benchmark for an eight month period (March – Nov); [b] the six month equivalent ENRP benchmark

Table 9: Mean growth in addition & subtraction by year level in 2010 (March 2009 – Sept 2010)

		2009		2010		Mar 09 – Sept 09	Sept 09 – Mar10	Mar 10 – Sept 10	ENRP	
	N	March Mean	Sept Mean	March Mean	Sept Mean	Mean Growth	Mean Growth	Mean Growth	Bench mark[a]	6 month[b]
1	701	0.28	1.39	1.77	2.50	1.110	0.384	0.732	1.09	0.82
2	694	1.33	2.55	2.87	3.44	1.218	0.321	0.572	1.09	0.82

[a] ENRP benchmark for an eight month period (March – Nov); [b] the six month equivalent ENRP benchmark

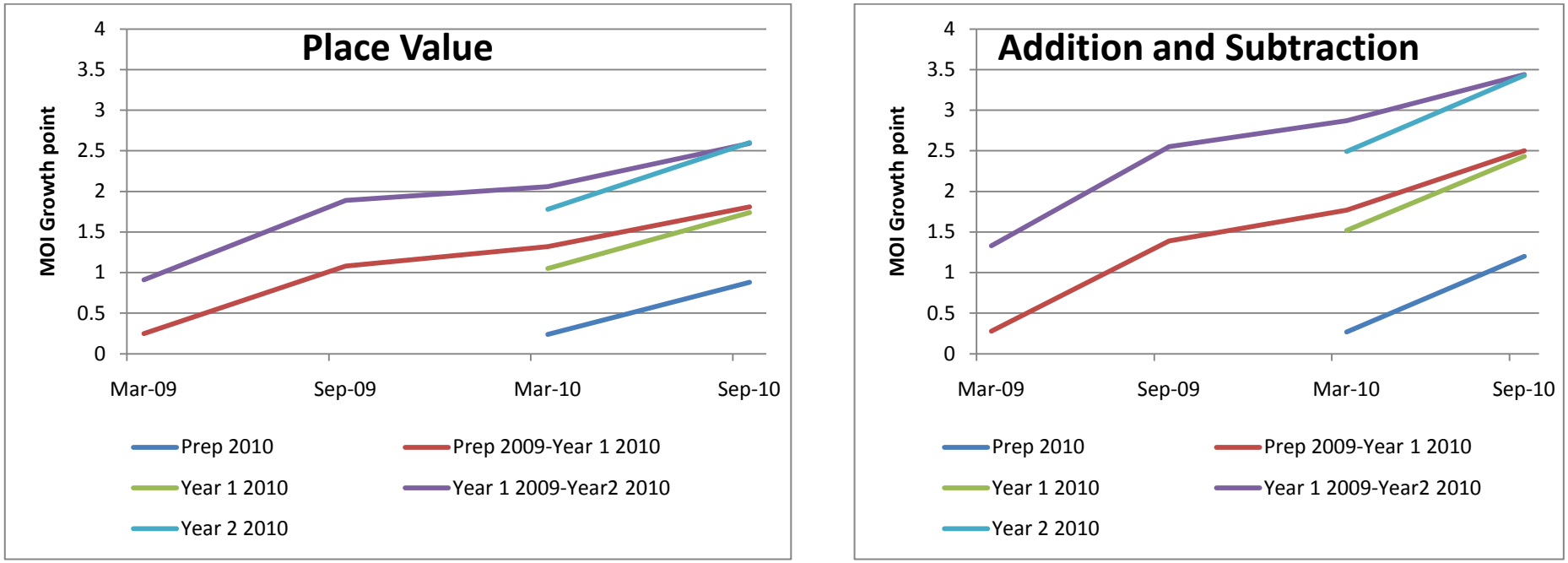


Figure 2: Mean scores (MOI growth points) for Place Value and Addition & Subtraction March 2009 to September 2010

5.5.3 Literacy 3-10

Achievement in reading measured using the VCAA *OnDemand Adaptive* Test is reported below. Mean scores for each year level, growth for each year level and for all Pilot students, and the distribution of scores are reported.

Mean growth in reading achievement for all students, primary students, junior secondary, middle secondary and each year level are recorded in Tables 10 and 11. These mean growth scores are for students who completed all four tests and so the graph maps their progress over 18 months. These tables also show total growth for one year for students who completed the three tests from September 2009.

The results reveal that students in the Pilot schools closed the gap with schools performing at or above expected level of growth and achievement for students in each of the primary grades and for primary Years 3-6 overall during Terms 2 and 3 of each school year. Mean growth in reading achievement during these terms was greater than expected. The highest mean growth was recorded for Year 6 students in Terms 2 and 3 in 2009. For the year from September 2009 to September 2010, total growth was also greater than expected.

Growth in reading achievement was not as strong for students in the secondary year levels with some year levels failing to reach the expected growth during Terms 2 and 3 (Year 9 students in 2009 and Year 7, 8 and 9 students in 2010).

For all year levels, growth in reading achievement slowed substantially during the six months covering Term 4 and Term 1. Only students transitioning from Year 4 to Year 5 achieved the expected growth for six months.

The pattern of high growth in achievement in Terms 2 and 3 and low growth for Terms 4 and 1 is confirmed in the results for individual networks (Appendix G, Table G1) and individual schools (Appendix I). Primary schools in the Wyndham Network and eight target schools (high average SFO and previously high proportions of underperforming students), including three secondary colleges, bucked this trend recording expected growth during the summer terms (see Appendix G, Table G1 and Appendix I).

Higher than expected levels of growth in reading achievement for students in the primary year levels is repeated for the much larger cohort who completed both tests in 2010 (see Appendix G, Table G1) and three of the four networks (see Appendix G, Table G4).

Secondary students from the Wyndham Network were more likely to reach or exceed expected levels of growth than secondary students in the other two networks. Higher than expected levels for secondary students were observed in the Wyndham and Shepparton Networks only for Terms 2 and 3 in 2009. Individual targeted schools provided some exceptional results for growth during Terms 2 and 3 for example Hoppers Crossing Secondary College in 2009, McGuire College in 2009 and Benalla SC in 2010 (see Appendix I).

Table 10: Mean growth in reading achievement for primary and secondary students, March 2009 – September 2010 (VELS score)

			Mar 09 – Sep 09		Sept 09-Mar 09		Mar 10-Sept 10		Sept 09-Sept 10		
	Yr Level (2010)	N	Mean Growth	Sig > 0.25	Mean Growth	Sig > 0.25	Mean Growth	Sig > 0.25	N	Mean Growth	Sig > 0.5
All	4-10	4071	0.3456	▲	0.1572	▼	0.3003	▲	6254	0.4648	▲
Primary	4-6	2719	0.3729	▲	0.1938	▼	0.3897	▲	4044	0.5767	▲
Junior Secondary	7-8	937	0.3398	▲	0.0902	▼	0.1389	▼	1443	0.2991	▼
Middle Secondary	9-10	415	0.1801	▼	0.0690	▼	0.0796	▼	764	0.1867	▼

Table 11: Mean scores and mean growth in reading achievement for students Years 3/4-9/10, March 2009 – September 2010 (VELS score)

		2009		2010		Mar 09 – Sep 09		Sept 09-Mar 10		Mar 10-Sept 10		Sept 09-Sept 10		
Yr (2010)	N	March Mean	Sept Mean	March Mean	Sept Mean	Mean Growth	Sig > 0.25	Mean Growth	Sig > 0.25	Mean Growth	Sig > 0.25	N	Mean Growth	Sig > 0.5
4	871	2.301	2.704	2.886	3.290	0.4025	▲	0.1826	▼	0.4032	▲	1276	0.5743	▲
5	949	2.860	3.196	3.401	3.768	0.3352	▲	0.2056	■	0.3664	▲	1433	0.5505	▲
6	899	3.291	3.675	3.868	4.269	0.3839	▲	0.1923	▼	0.4011	▲	1335	0.6073	▲
7	476	3.711	4.116	4.200	4.328	0.4045	▲	0.0843	▼	0.1279	▼	768	0.3063	▼
8	461	4.051	4.324	4.420	4.571	0.2730	■	0.0962	▼	0.1501	▼	675	0.2908	▼
9	268	4.465	4.697	4.778	4.741	0.2313	■	0.0808	▼	-0.0369	▼	453	0.1568	▼
10	147	4.407	4.494	4.541	4.834	0.0867	▼	0.0476	▼	0.2922	■	311	0.2302	▼

Growth in reading achievement for each year level cohort from March 2009 to September 2010 is illustrated in Figure 3. The graph highlights that the mean growth achieved by students in the primary years is higher than for secondary students over the 18 months.

The mean scores for each assessment period are recorded in Table 11 and illustrated in Figure 3. Mean scores for students in Years 4 to 6 are at or above expectations by as much as 6 months. Hence growth in reading achievement for students in the Pilot schools enabled these students, on average, to stay ahead of the expected level. Except for 2010 Year 8 students, the mean score for each year cohort in September 2010 is higher than mean score for the previous cohort in 2009, suggesting the changes in teaching practices were benefiting successive groups of students.

However, growth in the secondary years was not sufficient for students in the Pilot schools to reach the expected VELS level since the mean score at each assessment point is below the expected level and the mean score in reading for Year 8 students is at least one year behind the expected level. The much smaller sample of Year 9 and 10 students may not provide a reliable measure of achievement or growth for students at this year level.

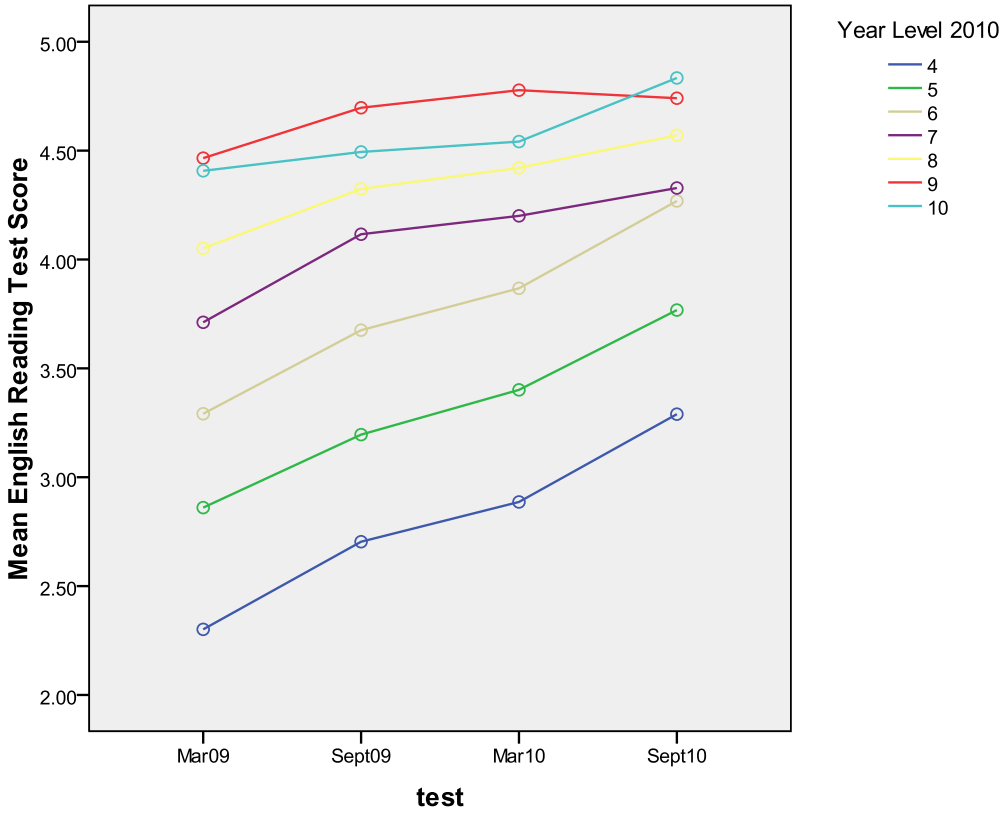


Figure 3: Reading mean achievement score (VELS) by year level from March 2009 to September 2010

The distribution of reading scores for all students who sat each test for each year level is shown in Figure 3. These bar graphs show that the proportion of students who are 'at risk' (at least one year behind expected level) oscillates during the calendar year. The proportion of 'at risk' reduces from March to September, but increases again from September to March. The opposite pattern is evident for the proportion of students who are 'well above' (more than one year over expected VELS level) with this group growing during Terms 2 and 3 and diminishing over the summer terms.

Between 21% and 30% of students were ‘at risk’ and up to 40% well above for the primary year levels. Marked increases in proportion ‘at risk’ occur in year 7 and year 9. The Pilot has had a positive impact during the primary years as the proportion of ‘at risk’ students falls and the proportion ‘well above’ rises over the 18 months for each year-level cohort.

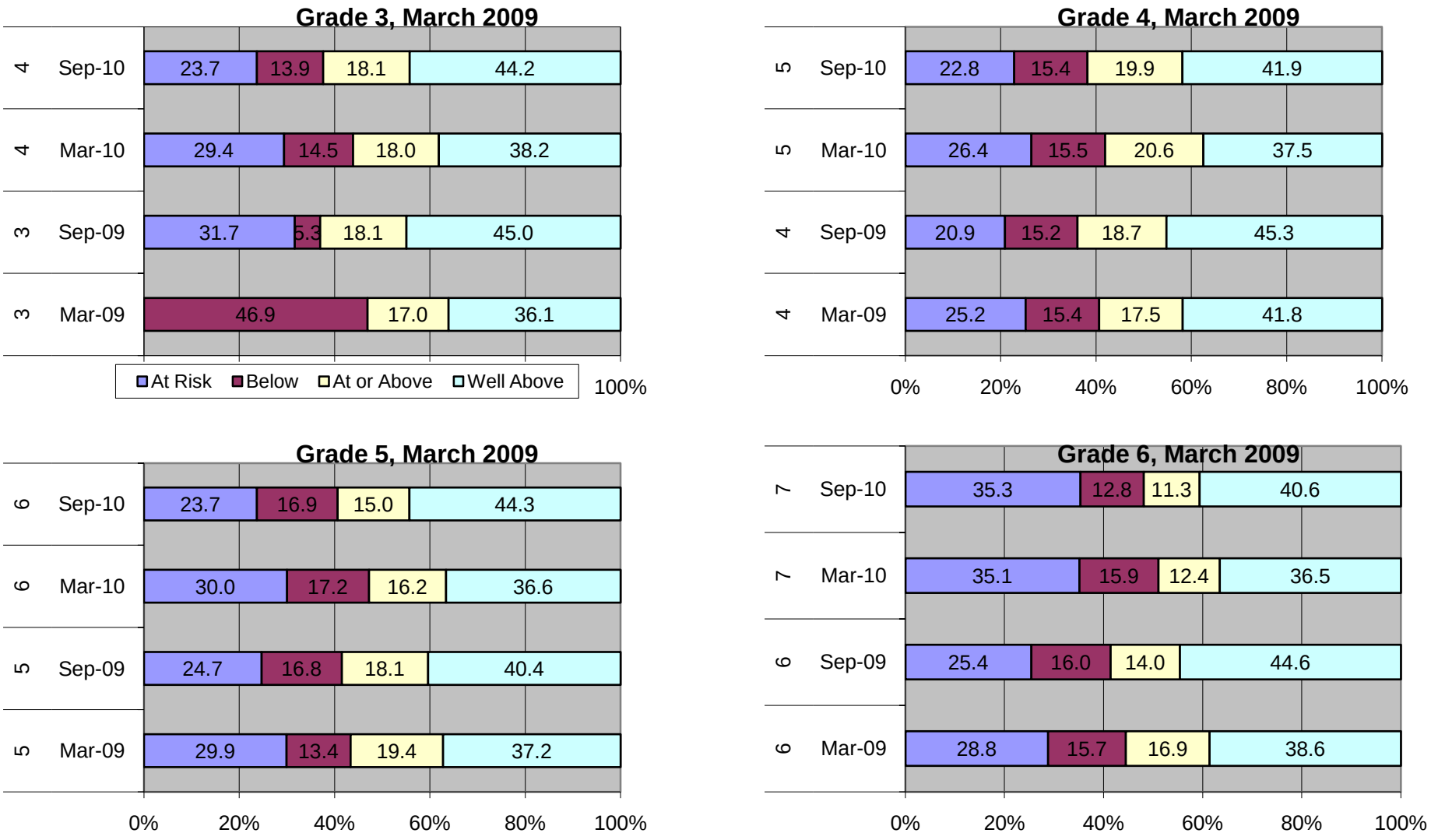
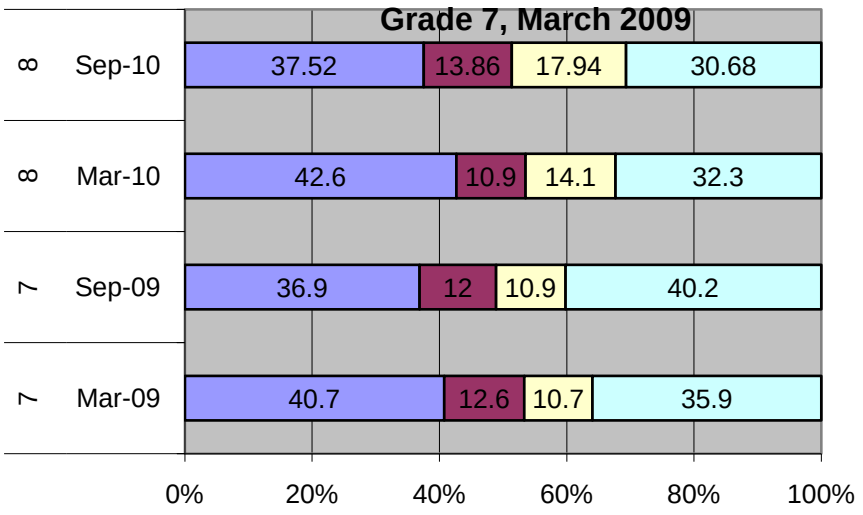
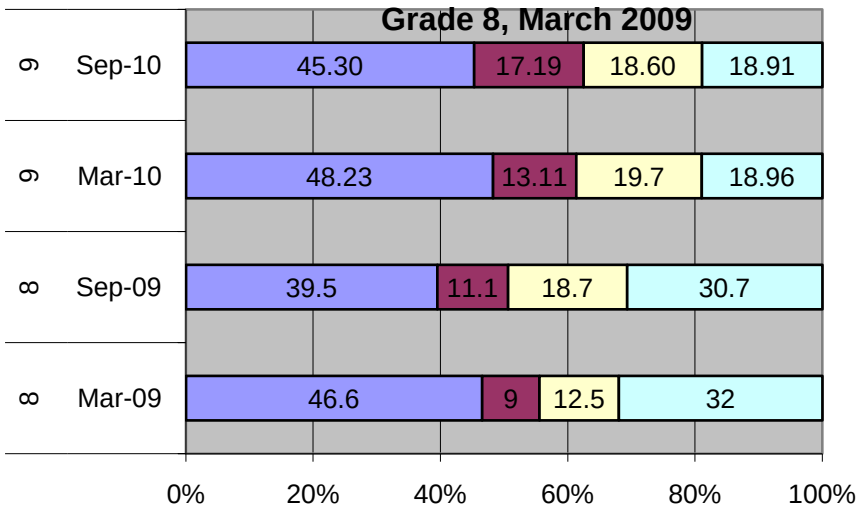


Figure 4: Distribution of reading scores for students in each year level from March 2009 to September 2010





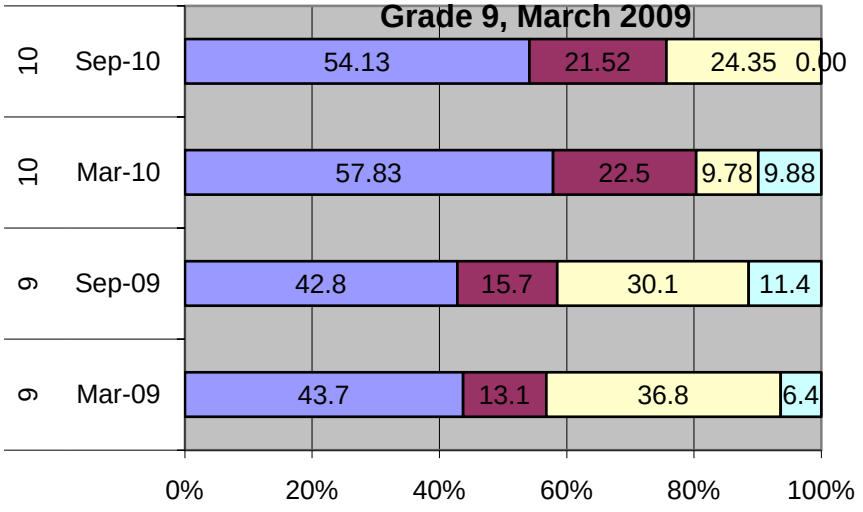


Figure 4 continued: Distribution of scores for students in each year level from March 2009 to September 2010

5.5.4 Numeracy 3-10

Achievement in number measured using the VCAA *On Demand Adaptive Test* is reported below. Mean scores for each year level, growth for each year level and for all Pilot students, and the distribution of scores are reported.

Mean growth in number achievement for all students, primary students, junior secondary, middle secondary and each year level is recorded in Tables 12 and 13. These mean growth scores are for students who completed all four tests and so the graph maps their progress over 18 months. These tables also show total growth for one year for students who completed the three tests from September 2009.

The results are very similar to those observed for reading achievement. Mean growth is higher than the expected levels in Terms 2 and 3 for the primary year levels in both years of the Pilot. Mean growth is also greater than expected for the larger cohort of primary students who completed both tests in 2010 (see Appendix H) but total growth for one year was at the expected level for the primary students who completed all tests from September 2009.

Growth slows over the spring and summer terms (Terms 4 and 1) to below expected growth for all year levels. Four target schools, three of which were secondary colleges, were exceptions recording expected growth during the summer months (see Appendix I).

The gap between Pilot schools and schools performing at or above expected level of achievement widens for students in the secondary year levels, since mean growth at best matched expected growth for 6 months only during 2009. Growth matched the expected level also for the much larger cohort of students in Years 7 and 8 taking both tests in 2010 (see Appendix H, Table H10). Sunshine College and Euroa SC are notable exceptions recording higher than expected level of growth for particular year levels (See Appendix I).

For students in each of the Networks, mean growth in number achievement is greater in Terms 2 and 3 than for Terms 4 and 1. Growth in achievement is only greater than expected for primary students in the Shepparton Network in Terms 2 and 3 in both years and in the Wyndham Network in Terms 2 and 3 in 2010. Growth in total reached expected levels over the two years of the Pilot in the primary years in Shepparton and Wyndham networks.

Many more students from the Deer Park Sunshine Network and the Wyndham Network participated in the number assessments during 2010 with greater than expected growth recorded for students in the primary years levels and expected growth recorded for those in the secondary years.

Table 12: Mean growth in number achievement for primary and secondary students, March 2009 – Sept 2010 (VELS score)

			Mar 09 – Sep 09		Sept 09-Mar 09		Mar 10-Sept 10		Sept 09-Sept 10		
	Yr Level (2010)	N	Mean Growth	Sig > 0.25	Mean Growth	Sig > 0.25	Mean Growth	Sig > 0.25	N	Mean Growth	Sig > 0.5
All	4-10	2315	0.3093	▲	0.1399	▼	0.2735	▲	4842	0.4213	▼
Primary	4-6	1364	0.3449	▲	0.1518	▼	0.3587	▲	2801	0.5125	■
Junior Secondary	7-8	612	0.2850	■	0.1261	▼	0.1796	▼	1422	0.3392	▼
Middle Secondary	9-10	337	0.2083	■	0.1159	▼	0.1006	▼	616	.1973	▼

Table 13: Growth in number achievement for students Years 3-10, March 2009 – Sept 2010 (VELS score)

		2009		2010		Mar 09 – Sep 09		Sept 09-Mar 10		Mar 10-Sept 10		Sept 09-Sept 10		
Yr (2010)	N	March Mean	Sept Mean	March Mean	Sept Mean	Mean Growth	Sig > 0.25	Mean Growth	Sig > 0.25	Mean Growth	Sig > 0.25	N	Mean Growth	Sig > 0.5
4	434	2.208	2.590	2.698	3.078	0.4025	▲	0.1826	▼	0.4032	▲	860	0.4810	■
5	434	2.698	3.032	3.166	3.529	0.3341	▲	0.1334	▼	0.3631	▲	947	0.5263	■
6	496	3.188	3.509	3.715	4.052	0.3218	▲	0.2059	■	0.3361	▲	994	0.5265	■
7	295	3.467	3.765	3.887	4.076	0.2983	■	0.1220	▼	0.1881	▼	717	0.3335	▼
8	461	3.727	3.999	4.129	4.301	0.2730	■	0.0962	▼	0.1501	▼	705	0.3451	▼
9	201	4.113	4.279	4.461	4.622	0.1659	▼	0.1821	■	0.1607	▼	430	0.2613	▼
10	136	4.373	4.644	4.662	4.674	0.2710	■	0.0180	▼	0.0118	▼	186	.0495	▼

Growth in number achievement for each year level cohort from March 2009 to September 2010 is illustrated in Figure 5. The mean scores are recorded in Table 13. The graph depicts similar findings to those reported for reading above. During the primary years growth is sufficient for mean scores for each cohort to remain roughly equivalent to the expected VELS level over the period.

For the secondary cohort groups including students transitioning from Year 6 to 7, growth in number is more consistent over the eighteen month period than for reading, but is still not sufficient for students on average to achieve the expected VELS level. Students towards the end of Year 8 are on average two years behind the expected VELS level.

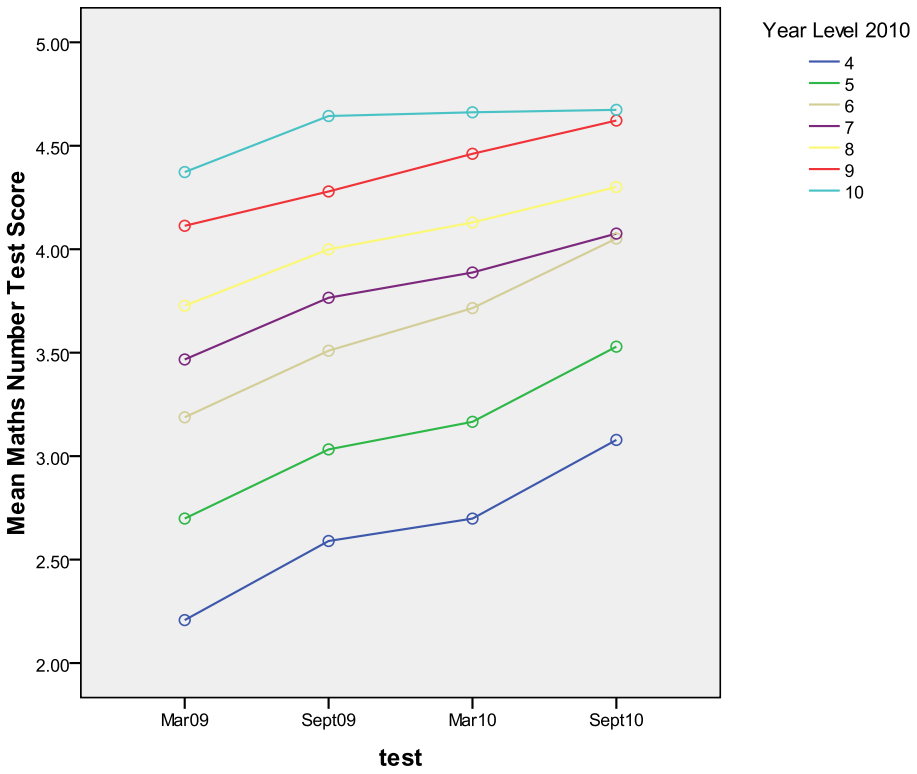


Figure 5: Number mean achievement (VELS score) for all students by year level from March 2009 to September 2010

The distribution of number scores for all students who sat each test for each year level is shown in Figure 6. As for the reading scores, these bar graphs show that the proportion of students who are 'at risk' (at least one year behind expected level) oscillates during the calendar year. The proportion of 'at risk' reduces from March to September, but increases again from September to March. The opposite pattern is evident for the proportion of students who are 'well above' (more than one year over expected VELS level) with this group growing during Terms 2 and 3 and diminishing over the summer terms.

Between 16% and 30% of students were 'at risk' and up to 37% well above for the primary year levels. Marked increases in proportion 'at risk' occur in year 7 and year 9 with almost 50% of year 8 students 'at risk' by September 2010. The proportion of students below expectation also oscillates. In the secondary year level the proportion of students below is above 50% and continues to rise through the year levels. The Pilot has had a positive impact during the primary years as the proportion of students 'above' and 'well above' rises over the 18 months for each year level cohort.

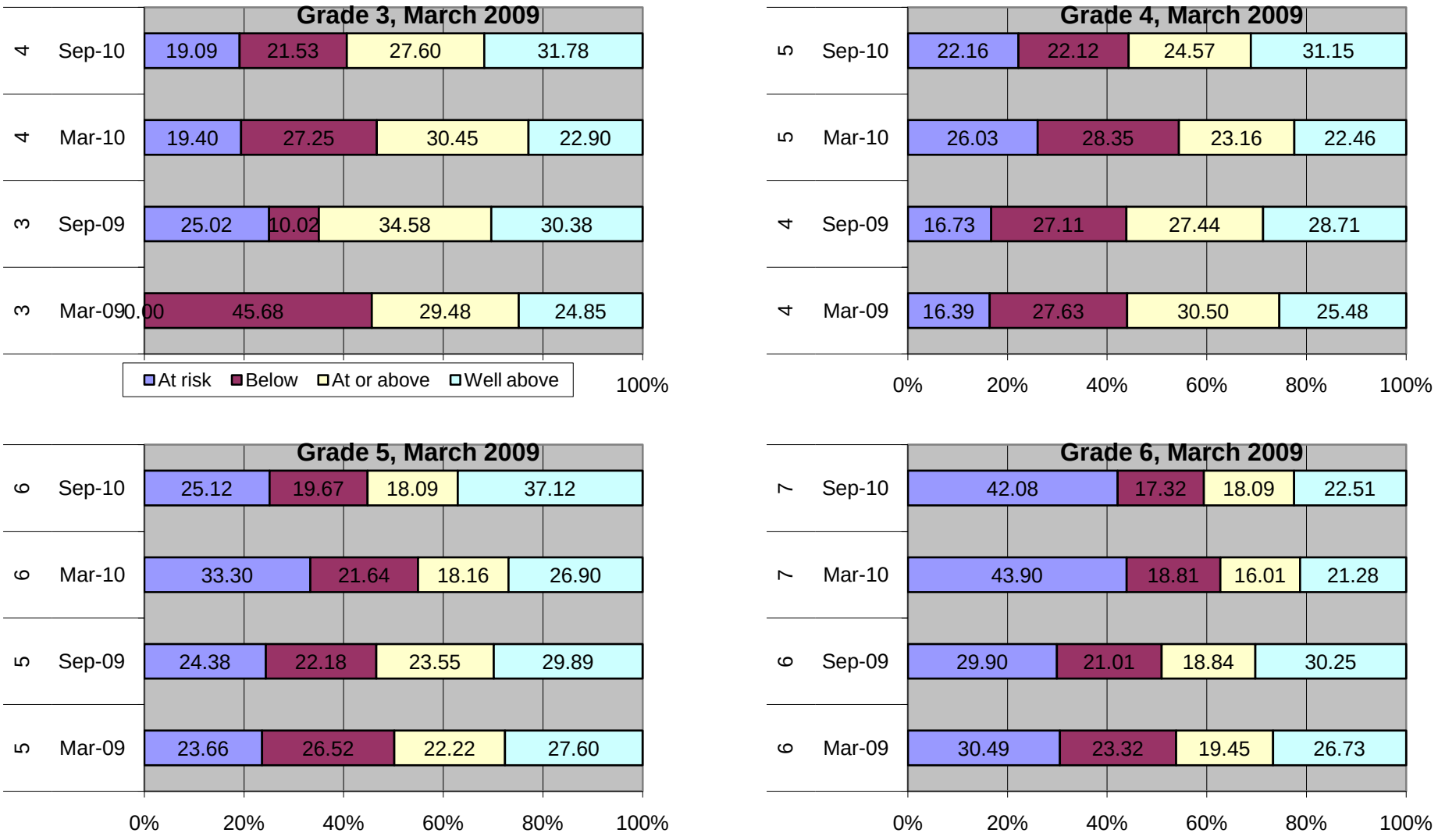
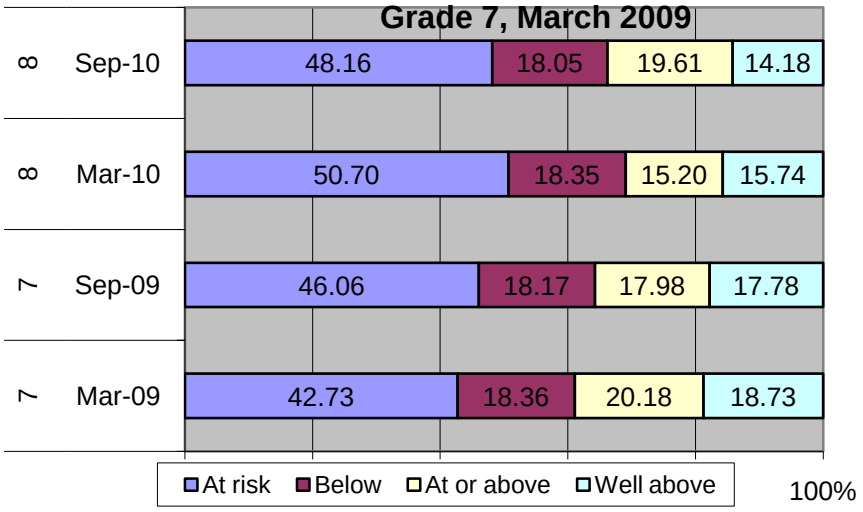
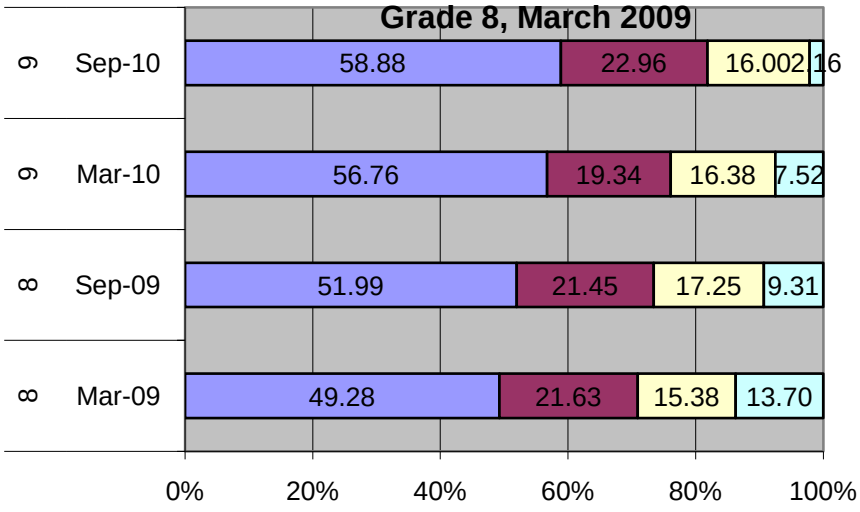


Figure 6: Distribution of number scores for students in each year level from March 2009 to September 2010





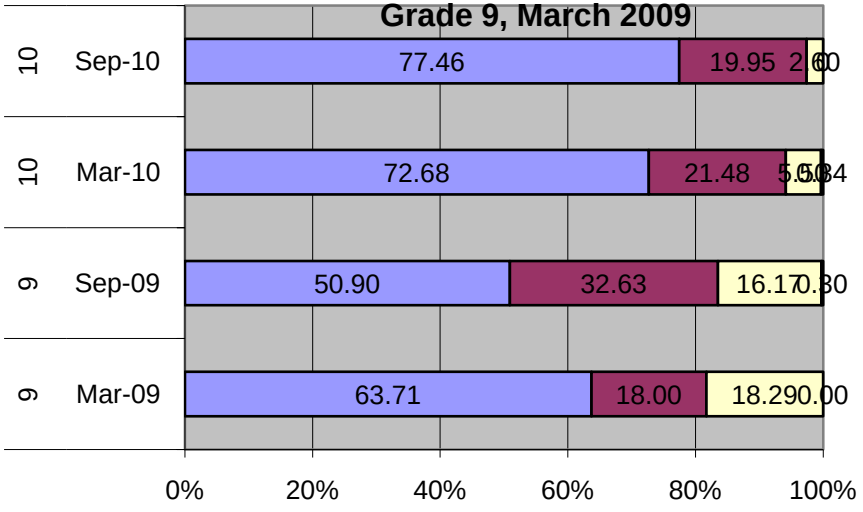


Figure 6 continued: Distribution of number scores for students in each year level from March 2009 to September 2010

5.6.5 Literacy and numeracy 3-9 (NAPLAN)

Growth in achievement by students in the Pilot schools was compared with growth in achievement by all Victorian students from 2008 to 2010 using NAPLAN data. The five domains tested by NAPLAN are reading, writing, spelling, grammar and punctuation and numeracy. In Table 14 growth is reported using NAPLAN Scale Scores (rather than Band Scores).

Mean growth in achievement was greater for students in Year 3 in 2008 and Year 5 in 2010 in the Pilot schools than for all Victorian primary students in these year levels for all five domains tested by NAPLAN.

Pilot students in Year 5 in 2008 and Year 7 in 2010 also recorded a higher mean growth than all Victorian students for grammar and punctuation.

The Pilot can therefore be seen to be successful in closing the gap for students in these year levels in the Pilot schools with all Victorian students.

However, the gap widened with respect to spelling (Year 5 to Year 7 and Year 7 to Year 9) and for writing in the secondary years.

Table 14: Mean growth in achievement, NAPLAN assessment 2008 to 2010 for Pilot schools and Victoria (NAPLAN Scale Score)

		Pilot Schools			Victoria		
Yr (2010)	Domain	N	Mean growth	SD	Mean growth	SD	Sig diff
Yr 3 to Yr 5	Reading	1809	88.29	55.35	82.3	58.2	★
	Writing	1807	75.6	64.66	70.2	64.5	★
	Spelling	1815	84.33	38.66	77.9	40.9	★
	Gram & Punct'n	1815	87.59	71.29	83.5	73.4	★
	Numeracy	1802	91.49	50.98	85.5	53.3	★
Yr 5 to Yr 7	Reading	1125	58.76	48.07	57.9	49.7	●
	Writing	1126	41.15	71.46	39	71.5	●
	Spelling	1132	51.52	37.82	54.1	37.3	★
	Gram & Punct'n	1132	32.18	68.99	27.4	68.8	★
	Numeracy	1117	64.28	43.38	64.7	44.4	●
Yr 7 to Yr 9	Reading	1402	39.70	47.99	38.3	44.5	●
	Writing	1411	22.06	84.5	28.3	80.1	★
	Spelling	1417	35.22	40.82	38.1	37.8	★
	Gram & Punct'n	1417	46.7	61.83	46.3	61.1	●
	Numeracy	1406	37.08	38.19	38.9	39.2	●

5.6.6 Literacy and numeracy P-10 (Teacher Judgments)

The impact of the Pilot on student achievement was also gauged by Teacher Judgments. A report on teacher judgment of students from December 2008 to June 2010 is attached as Appendix E. Mean teacher judgment scores were calculated for each school by year level. Median school teacher judgment scores were then calculated for each year level and mapped against expected VELS level. Analysis of students who were in Year 5 or Year 6 in 2008 is not included in the report prepared on teacher judgments.

Teachers in the Pilot schools judged their students in both literacy and numeracy to be progressing each semester but growth diminished over the years. Only students who began Prep in 2008 were judged to be above expected level for reading in June 2010. For all other year-level cohorts the gap widened between their achievement and the expected level of achievement as they progressed through school according to teacher judgment. Year 8 students in 2008 were more than one year behind (> 0.5 VELS points) their expected level in June 2010 when in Year 10 according to teacher judgment.

5.6 Key findings

The multi-faceted network approaches to school improvement described in Chapter 4 have enhanced teacher capacity and agency with teachers also reporting enhanced leadership support and higher levels of engagement in participative decision making.

Teachers are using data to better understand their students' knowledge and the next point of their learning to implement differentiated or personalised teaching and learning approaches. They have observed and reported improved engagement and learning for their students.

These approaches have impacted positively on student attitudes. Students reported improved perceptions of well-being, teaching and learning and student relationships.

Improved learning outcomes for literacy are evident for students in the early years (P-2) during 2009. Improved learning outcomes are also evident for numeracy for students in Years P-2. Improvements were especially evident in the first year of collecting numeracy data (2009 for students who completed all four assessments and 2010 for students who completed the two assessments in 2010).

Improved learning outcomes are evident for primary students (Years 3-6) for both reading and number. These findings are consistent for VCE *OnDemand* Assessment, NAPLAN and Teacher Judgments.

The Pilot is yet to make a sustained impact for improved outcomes for secondary students in reading and number, and growth in achievement of secondary students lacks the consistency evident across the primary year levels.

A slow-down in achievement during the summer terms is evident in reading and number for primary and secondary students. Improved growth during the summer terms provides the best opportunity for sustained and further improvement in students' learning outcomes. The reflections, explanations and responses of principals to the summer slow-down are reported in Chapter 7.

In the next chapter we report on the impact of the Pilot on the literacy and numeracy outcomes of low socio-economic students and other disadvantaged students who are the focus of the Pilot.

6.0 Impact of the Pilot on Particular Student Cohorts

6.1 Introduction

The Pilot was implemented to improve the literacy and numeracy outcomes for students of low socio-economic communities and other groups of students whose achievement has usually lagged behind socially and economically advantaged students. These include Indigenous (Koorie) students, students who are refugees and students whose first language is other than English and who have arrived in Australia in the past five years (English as a Second Language student or ESL student). Newly arrived students may be refugee and ESL students but they can also come from English speaking but culturally different communities and countries.

In this chapter we consider the way in which Pilot schools have responded to the needs of students of low socio-economic families and other disadvantaged students in their school communities and how the multi-faceted approaches to school improvement have impacted on the achievement outcomes for these students. Growth in achievement for each cohort of students is compared with expected growth and with other students in the Pilot schools using VCAA *OnDemand* scores and with Victorian students using NAPLAN data. Graphs of student achievement for each cohort illustrate progress made over the 18 months of the Pilot. In some graphs categories of 'unknown' students are included. These data are for small numbers of students for whom demographic information was not provided.

The particular evaluation questions to be addressed in this chapter are:

> How do individual students and their families experience the approach adopted by the schools within the network?
> How has the pilot impacted on student cohorts (Koorie, ESL, New Arrivals and refugee)?

6.2 Literacy and numeracy teaching for low socio-economic and other disadvantaged students

Across OECD countries, the socio-economic composition of schools is a key indicator of students' academic achievement. Perry and McConney (2010), for example, report that their analysis of Australia's 2003 PISA data, shows that increasing achievement holds for increasing socio-economic composition of schools and that this relationship is broadly sustained regardless of the socio-economic family background of individual students. Attempting to align the curriculum and pedagogies of public schools with the interests and culture of local communities so that personal and school knowledges can be connected remains an unresolved educational imperative around the world. In her discussion on the meaning of culture, Gonzalez (2009) notes the various approaches and definitions that have emerged over the years including culture 'as a holistic configuration of traits and values that shaped members into viewing the world in a particular way' (p. 34). She comments on the notion of 'cultural hybridity' where all citizens draw upon an 'intercultural and hybrid knowledge base' (p. 38) as the all-embracing processes of globalisation continue. If this viewpoint offers a useful frame of analysis, then the role of the teacher in navigating and brokering cultural values and practices is exceedingly complex. The issue here is how to take the privileged knowledge that schools and society value and which all low socio-economic families should expect to encounter in public schools and connect meaning and understanding with the wide range of knowledges that communities embody. In this way, working class and lower socio-economic culture and knowledge is not seen as a deficit or a barrier to school learning, but the broad, dynamic experiential base on which reflection takes place and from which new and transforming ideas are composed.

In the schools participating in the in-depth study, development of whole school approaches to enhance students' well-being and engagement demonstrate the commitment that effective schools have to

knowing and meeting the needs of their students. In some instances schools have focused on developing cultural understanding through professional learning and/or programs to communicate and engage with families and communities. Examples include the Family Liaison Officers working in the Shepparton Neighbourhood Primary Schools and events such as "Stories from the Road," a student performance which celebrated the diverse multicultural community of St Georges Road PS.

Teachers identified specific changes in pedagogic practices as having led to improvements for their students. Integral to this is a willingness of the staff to discuss what it means to teach in a low socio-economic community. While there is not always consensus, there is dialogue and professional discussion. Some teachers recounted visits to the homes of students where families were reported as owning 'no books at all'. A distinguishing feature of the teachers who participated in this research is their awareness of the importance of knowing the cultural and family circumstances of their students. Not only do they know their students' circumstances but they also make concerted efforts to encourage excellence in these students. Making the connection between this knowledge and the encouragement of excellence is a self-reported characteristic of the work of these teachers.

> *"People are now seeing … that these kids are just as capable as any other set of kids. They're no different really. How we support them is more about their teaching practice rather than the kids and their SES background." (RNL and NIC 6th Oct)*

For many, this marks a significant change from recent practice.

This awareness of the complexity of understandings about children from low socio-economic backgrounds has been reflected in Regional Literacy Coaches sessions, interviews with Regional Network Leaders (RNLs) and Network Improvement Co-ordinators (NICs), personal accounts from participants, and during roundtable discussions where draft copies of school cases were considered collaboratively and verified. A Regional Network Leader spoke of children entering school who had never before held a book: "it's not untypical to hear of kids who have never held a book before, are not able to know which way you hold a book" (RNL and NIC 6th Oct). This was recognised by some as a challenge – not a deterrent. At each level there was a recognition that students bring with them into the classroom perspectives that shape their lives and worldviews and impact directly on how they will learn.

Pilot schools with Koorie students are following DEECD policy that is the Wannik Strategy, and implementing programs to support Koorie students. Schools with high numbers of Koorie students were also engaging with or seeking to engage with Koorie families and communities. Gowrie St PS has been working closely with their Koorie community for many years and is continuing to build relationships with Koorie families and community. It is doing this in conjunction with the other schools in Shepparton through the Primary Neighbourhood and the Network Cluster of Pilot target schools. Gowrie St PS has a Koorie sub-committee of School Council and the school includes a dedicated Koorie classroom and program, called Manega. Koorie parents can choose to enrol their students in this unit. During 2010 a regional strategic review was conducted of Manega. The outcome is not known to the evaluators.

Particular interventions for Koorie students include Individual Learning Programs (ILPs), YALP, an intervention program targeting Koorie students, and Wannik Tutoring, a literacy support program targeting Koorie students in which tutors listen to Koorie children read in classrooms. (More information about the outcome of these particular programs for Koorie students is provided in Chapter 7.) Some teachers reported that although they were preparing ILPs for their Koorie students, they were not always being implemented. ILPs require the teacher, student and parent to meet and agree to the program, including participation in particular intervention programs, and this seems to have been difficult to achieve for these teachers. It is not clear what the failure to implement means since teachers are

planning differentiated teaching and learning to address the needs of Koorie students and many Koorie students are participating in various intervention programs (see Chapter 7).

Attention given by teachers to developing oral language and meta-language demonstrates their view that this knowledge is important for all learning and for all students. English language classes are provided for ESL students including those who are refugees or newly arrived though participants in the in-depth schools typically did not discuss teaching English to English language learners approaches (TESOL) or how these pedagogies were being used in classrooms. Teachers at one secondary school were keen to learn more about TESOL approaches and how they might be used in general English and literacy classrooms.

6.3 Growth in achievement for low socio-economic students

6.3.1 Numeracy in the early years (P-2)

Growth in achievement for students of families categorised in the two lowest Student Family Occupation groups (D and N) for March 2009 to September 2010 for each MOI number domains is recorded in Appendix H.

Growth in achievement for two lowest Student Family Occupation groups (D and N) students is greater than the ENRP benchmark for Terms 2 and 3 in 2009 and 2010 for all domains. Growth is greater in 2009. There is a marked slow-down in growth for the summer terms from September 2009 to March 2010. Growth in multiplication and division is not significantly different from zero for this period.

As expected, growth in achievement is greatest for counting and lowest for multiplication and division in each of the six month periods.

Growth in achievement for place value and addition and subtraction for all SFO groups for March 2010 to September 2010 is illustrated in Figures 7 and 8. The gap between the lowest SFO (D&N) and the highest SFO (A) students is statistically significant for both place value ($F=26.758$, $p<0.05$) and addition and subtraction ($F=29.691$, $p<0.05$). The gap is constant for place value (0.4 GPs) and closes slightly for additive thinking (to 0.5 GPs in September 2010) though this effect is not statistically significant.

6.3.2 Literacy and numeracy in primary schools

Growth in achievement for primary students of families categorised in the two lowest Student Family Occupation groups (D and N) are recorded in Tables 15 and 16. Growth in achievement for these students is greater than expected for Terms 2 and 3 in 2009 and 2010 for both literacy and numeracy but is significantly below expectation for Terms 4 and 1 covering the end and beginning of consecutive school years. For the year since September 2009 average growth in reading achievement is higher than expected.

Figures 9 and 11 illustrate the gap in reading and numeracy achievement between students of unemployed families (SFO category D) and those of professional families (SFO category A).

The gap has widened slightly for reading and number. On average for reading, the students from the lowest SFO families were just under two years behind the students from the highest SFO families (0.95 VELS points) in March 2009 and just over two years behind (1.01 VELS points) in September 2010.

For number, the gap was smaller and just under 18 months behind (0.66 VELS points) in March 2009 and just over in September 2010 (0.77 VELS points). This widening of the gap was statistically significant ($F=5.822$, $p<0.05$).

The slow-down in achievement growth over the summer means that the lowest socio-economic students had more to catch up in the following year.

However, the NAPLAN data in Table 17 show that growth in achievement for the two lowest SFO cohorts of students in Year 3 in 2008 to Year 5 in 2010 was higher than the other students in the grades in the Pilot for all domains except Spelling and higher than all Victorians in these grades for all domains. These findings mean that overall the lowest socio-economic primary students in Pilot schools have closed the gap with all other Victorian students, even if they have not closed the gap with the highest scoio-economic students in the Pilot schools.

6.3.3 Literacy and numeracy in secondary schools

Growth in reading achievement for secondary students of families categorised in the two lowest Student Family Occupation groups (D and N) was significantly greater than the expected rate in Terms 2 and 3 in 2009 (see Tables 15 and 16). For the 12 months from September 2009 to September 2010 growth in reading achievement for secondary students was significantly below expected levels for the lowest socio-economic cohorts of students.

Growth is illustrated in Figures 10 and 12. For reading, growth clearly flattens for students in most occupational groups after September 2009. The students from the lowest SFO family are two and a half years behind students from the highest SFO families (1.26 VELS points) in March 2009. The gap closes slightly for these students (1.18 VELS points) by September 2010.

For number, growth is more consistent for each six-month period but at no time was greater than expected. However, the gap closed slightly between the lowest and highest socio-economic students. In March 2009 the students from the lowest SFO families are just over 18 months behind the students from the highest SFO families (0.80 VELS points) but 18 months behind (0.75) in September 2010.

According to the NAPLAN data (Table 17) growth in achievement for reading and writing is greater for the two lowest SFO Pilot students than for all Victorian students for those in Year 5 in 2008 (Year 7 in 2010) and for reading for those in Year 7 in 2008 (Year 9 in 2010). For all other NAPLAN domains achievement growth for the two student lowest SFO cohorts is lower than the Victorian average.

The Pilot therefore has enabled students of low socio-economic families in the secondary years in Pilot schools to improve their achievement in reading relative to other Victorian students.

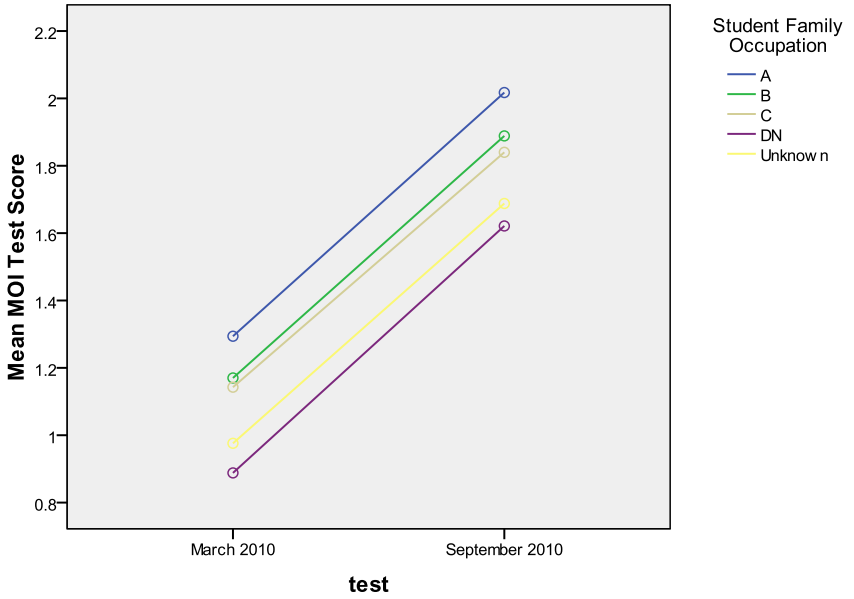


Figure 7: Place value mean scores (MOI growth points) for SFO student cohorts March to September 2010

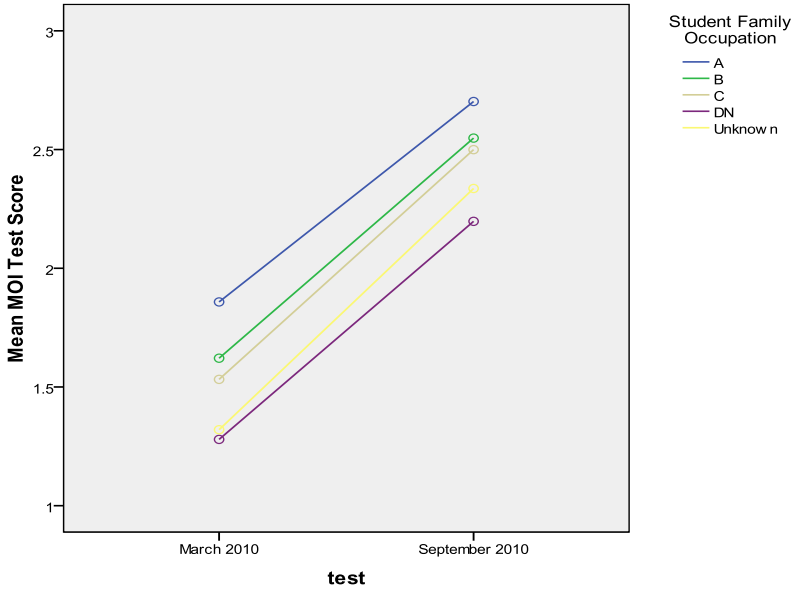


Figure 8: Addition and subtraction mean scores (MOI growth points) for SFO student cohorts March to September 2010

Table 15: Growth in reading achievement for the lowest SE (D&N) students, March 2009 – Sept 2010

		Mar09 – Sep 09		Sept 09-Mar10		Mar 10-Sept 10		Sept 09-Sept 10		
Yr (2010)	N	Mean Growth	Sig > 0.25	Mean Growth	Sig > 0.25	Mean Growth	Sig > 0.25	N	Mean Growth	Sig > 0.5
4-10	1958	0.3635	▲	0.1230	▼	0.2921	▲	2911	0.4376	▼
4-6	1280	0.3784	▲	0.1603	▼	0.3836	▲	1858	0.5442	▲
7-10	678	0.3353	▲	0.0527	▼	0.1193	▼	1052	0.2499	▼

Table 16: Growth in number achievement for the lowest SE (D&N) students, March 2009 – Sept 2010

		Mar09 – Sep 09		Sept 09-Mar10		Mar 10-Sept 10		Sept 09-Sept 10		
Yr (2010)	N	Mean Growth	Sig > 0.25	Mean Growth	Sig > 0.25	Mean Growth	Sig > 0.25	N	Mean Growth	Sig > 0.5
4-10	1073	0.2907	▲	0.1461	▼	0.2548	■	2310	0.3935	▼
4-6	594	0.3412	▲	0.1301	▼	0.3441	▲	1232	0.4763	■
7-10	478	0.2271	■	0.1658	▼	0.1450	▼	1076	0.2994	▼

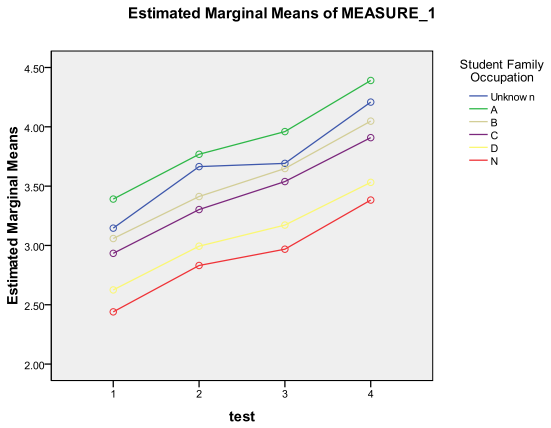


Figure 9: Mean reading scores for primary students by occupational background

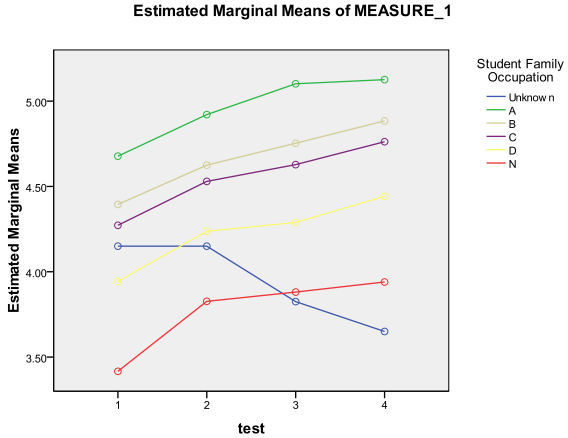


Figure 10: Mean reading scores for secondary students by occupational background

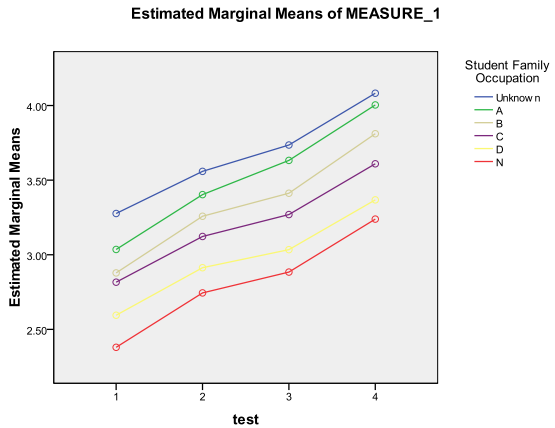


Figure 11: Mean number scores for primary students by occupational background

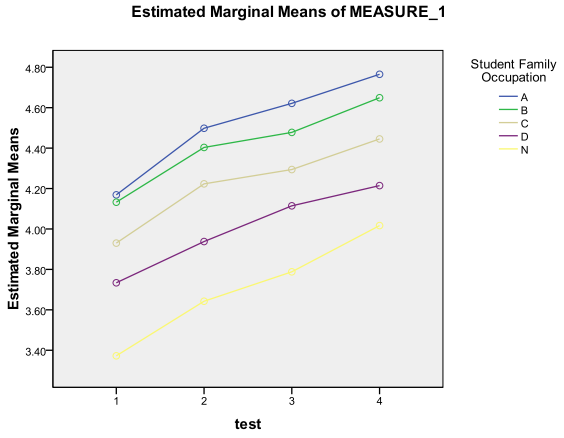


Figure 12: Mean number scores for secondary students by occupational background

Table 17: Mean growth in achievement, NAPLAN assessment 2008 to 2010 for low SE students and others in Pilot schools and Victoria (scale score)

		Pilot: Low SE students			Pilot: Other students			Victoria	
Yr (2010)	Domain	N	Mean growth	SD	N	Mean growth	SD	Mean growth	SD
Yr 3 to Yr 5	Reading	1218	89.85	56.15	1809	88.29	55.35	82.3	58.2
	Writing	1212	76.34	61.72	1807	75.6	64.66	70.2	64.5
	Spelling	1219	83.78	39.01	1815	84.33	38.66	77.9	40.9
	Gram & Punct'n	1219	89.15	71.37	1815	87.59	71.29	83.5	73.4
	Numeracy	1214	93.43	51.32	1802	91.49	50.98	85.5	53.3
Yr 5 to Yr 7	Reading	779	60.36	47.69	1125	58.76	48.07	57.9	49.7
	Writing	775	44.09	72.53	1126	41.15	71.46	39	71.5
	Spelling	777	52.49	38.07	1132	51.52	37.82	54.1	37.3
	Gram & Punct'n	777	33.65	70.8	1132	32.18	68.99	27.4	68.8
	Numeracy	774	63.19	42.54	1117	64.28	43.38	64.7	44.4
Yr 7 to Yr 9	Reading	974	39.97	46.15	1402	39.70	47.99	38.3	44.5
	Writing	972	23.23	81.35	1411	22.06	84.5	28.3	80.1
	Spelling	981	35.46	41.45	1417	35.22	40.82	38.1	37.8
	Gram & Punct'n	981	46.46	61.57	1417	46.7	61.83	46.3	61.1
	Numeracy	973	38.36	37.65	1406	37.08	38.19	38.9	39.2

6.4 Growth in achievement for Koorie students

6.4.1 Numeracy in the early years (P-2)

Growth in achievement for Koorie students for March 2009 to September 2010 for each MOI number domains is recorded in Appendix H.

Growth in achievement for Koorie students is greater than the ENRP benchmark for Terms 2 and 3 in 2009 and 2010 for all domains. Growth is greater in 2009. There is a marked slow-down in growth for the summer terms from September 2009 to March 2010. Growth in place value and multiplication and division is not significantly different from zero for this period.

As expected, growth in achievement is greatest for counting and lowest for multiplication and division in each of the six month periods.

During 2010 the narrow achievement gap between Koorie and non-Koorie students is constant for place value (0.16 GPs) and widens slightly for addition and subtraction (0.3 GPs) but these differences are not statistically significant. See Figures 12 and 13.

6.4.2 Literacy and numeracy in primary schools

Growth in achievement for Koorie primary students is recorded in Tables 18 and 19. Growth in reading achievement was significantly greater than expected for number in Terms 2 and 3 of 2009 and for reading in Terms 2 and 3 for 2010.

Growth in achievement is below expectation for Koorie primary students during the summer.

Both Figures 15 and 17 show that growth in reading and number achievement during the two years of the Pilot is similar for Koorie and non-Koorie students. However, the gap in achievement between these cohorts of students widens slightly during this period.

For reading, the gap between Koorie and non-Koorie students is less than one year (0.47 VELS points) in March 2009 and just over one year (0.60 VELS points) in September 2010.

For number, the gap is similar to reading and widens from 0.45 VELS points in March 2009 to 0.53 VELS points in September 2010.

According to NAPLAN results (Table 20) the Pilot has had a significant impact on number achievement for Koorie students in the primary years since growth for Koorie students in the Pilot was significantly greater than growth for all Koorie students in Victoria. Growth in the literacy domains was not significantly different.

6.4.3 Literacy and numeracy in secondary schools

In general, growth in reading and number achievement for Koorie students in the secondary years was not significantly different from expected levels even though the mean growth scores appear to be much higher than expected for March to September of 2009 (see Tables 18 and 19).[8]

The decline in reading achievement for secondary Koorie students is clearly evident in Figure 16. The gains made during 2009 were not sustained. The gap between Koorie and non-Koorie students of more than one year (0.57 VELS points) in March 2009 widened to 0.64 VELS points. It appears that improved outcomes for Koorie students in Year 6 were not sustained when they entered secondary school.

[8] The low number of secondary students together with diverse levels of growth contributed to the absence of significant findings for the statistical measures.

However, growth in number achievement for Koorie students was sustained over the period even if it did slow from September 2009 (see Figure 18 and Table 20). The gap in number achievement between Koorie and non-Koorie students was less than one year and remained unchanged (0.42 VELS points).

There were no significant differences in growth in achievement for the NAPLAN literacy and numeracy domains between Koorie students and non-Koorie students who were in Year 5 or Year 7 in 2008 (Table 20).

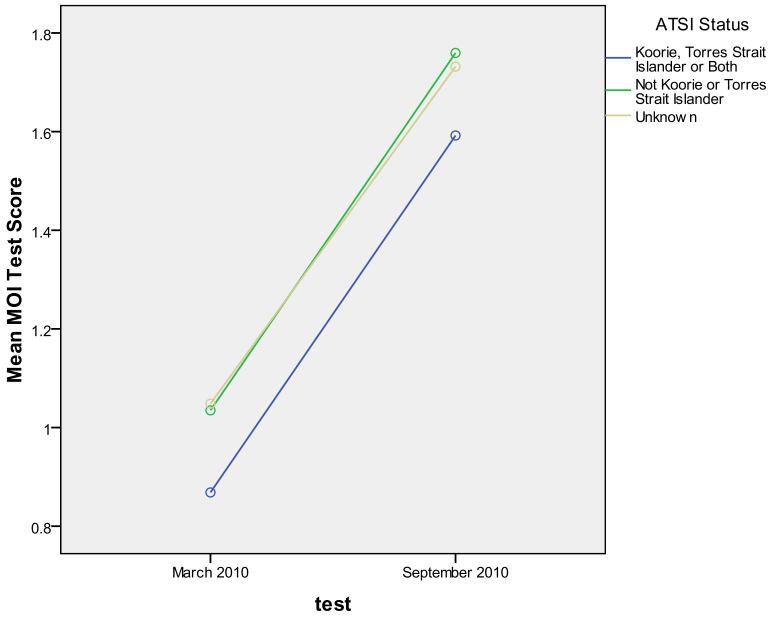


Figure 13: Place Value mean scores (MOI growth points) for Koorie and non-Koorie students March to September 2010

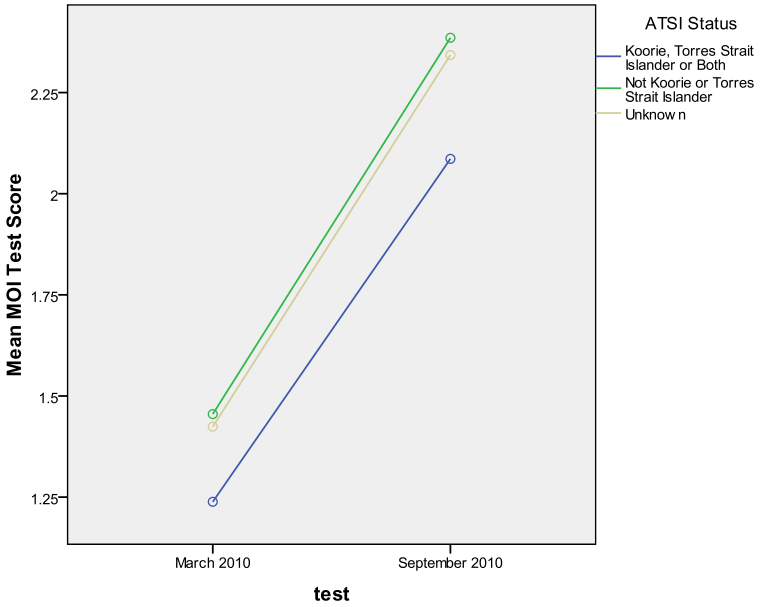


Figure 14: Addition and subtraction mean scores (MOI growth points) for Koorie and non-Koorie students March to September 2010

Table 18: Growth in reading achievement for Koorie students, March 2009 – Sept 2010

		Mar09 – Sep 09		Sept 09-Mar19		Mar 10-Sept 10		Sept 09-Sept 10		
Yr (2010)	N	Mean Growth	Sig > 0.25	Mean Growth	Sig > 0.25	Mean Growth	Sig > 0.25	N	Mean Growth	Sig > 0.5
4-10	157	0.3812	▲	0.0889	▼	0.2245	■	193	0.2948	▼
4-6	102	0.3225	■	0.1225	■	0.3951	▲	121	0.4901	■
7-10	55	0.4900	■	0.0264	■	-0.0918	▼	72	-0.0333	▼

Table 19: Growth in number achievement for Koorie students, March 2009 – Sept 2010

		Mar09 – Sep 09		Sept 09-Mar10		Mar 10-Sept 10		Sept 09-Sept 10		
Yr (2010)	N	Mean Growth	Sig > 0.25	Mean Growth	Sig > 0.25	Mean Growth	Sig > 0.25	N	Mean Growth	Sig > 0.5
4-10	121	0.3264	▲	0.1256	▼	0.2190	■	164	0.3287	▼
4-6	71	0.3437	▲	0.1408	▼	0.2901	■	97	0.4227	■
7-10	50	0.3020	■	0.1040	■	0.1180	■	67	0.1925	▼

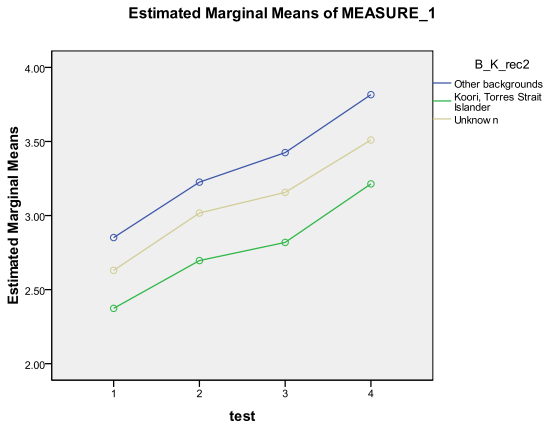


Figure 15: Mean reading scores for Koorie and non-Koorie primary students

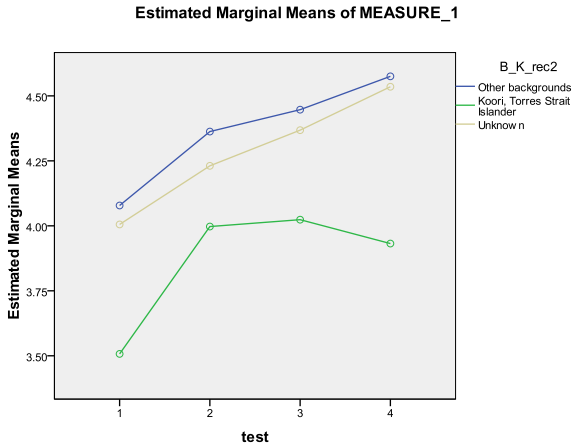


Figure 16: Mean reading scores for Koorie and non-Koorie secondary students

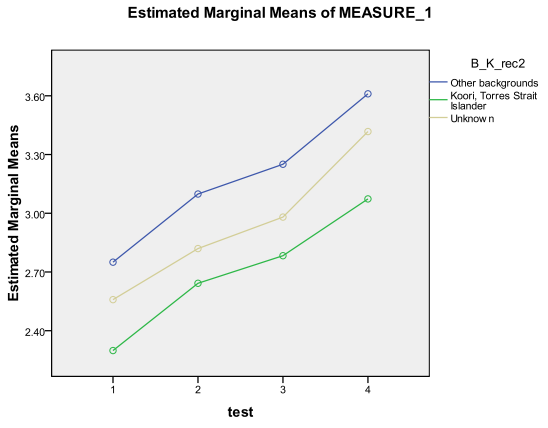


Figure 17: Mean number scores for Koorie and non-Koorie primary students

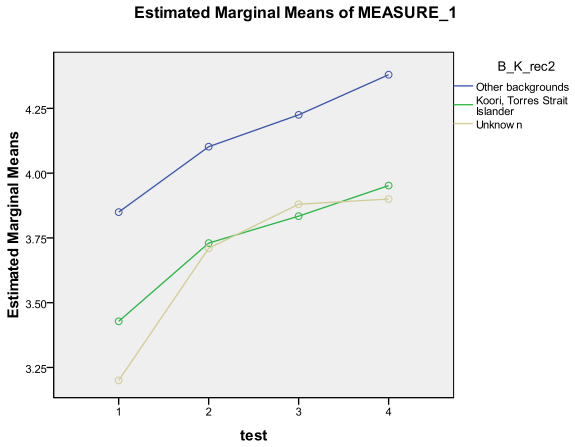


Figure 18: Mean number scores for Koorie and non-Koorie secondary students

Table 20: Mean growth in achievement, NAPLAN assessment 2008 to 2010 for Pilot Koorie students and Victorian Koorie students (scale score)

		Pilot School Koorie students			Victoria Koorie students		
Yr (2010)	Domain	N	Mean growth	SD	Mean growth	SD	Sig diff
Yr 3 to Yr 5	Reading	45	82.81	59.66	82.7	62.1	●
	Writing	44	83.82	63.43	66	59.2	●
	Spelling	44	88.07	40.71	87.2	43.4	●
	Gram & Punct'n	44	91.67	76.62	86.7	78.8	●
	Numeracy	44	100.34	47.2	80.7	55.5	★
Yr 5 to Yr 7	Reading	44	46.43	50.83	54.6	55.5	●
	Writing	42	34.8	69.49	33.5	70.4	●
	Spelling	42	50.67	39.49	48.3	40.3	●
	Gram & Punct'n	42	28.55	65.24	25.7	80.8	●
	Numeracy	43	60	43.54	58.1	44.9	●
Yr 7 to Yr 9	Reading	44	32.19	46.2	33.3	43.9	●
	Writing	43	22.31	76.77	20.9	96.1	●
	Spelling	43	27.13	42.62	31.7	41.3	●
	Gram & Punct'n	43	54.66	51.34	44.9	60.6	●
	Numeracy	48	27.96	34.98	37.6	38.2	●

6.5 Growth in achievement for students who are English language learners

In the following sections we report on growth in achievement for students who are learners of the English language. For many students in the Pilot schools English is not their first language and could be their second, third or fourth language. English as a Second Language (ESL) is the term used by the DEECD to identify those students whose first language is not English and who have been in Australia for less than five years. It is these students whose learning is evaluated in this report.

6.5.1 Numeracy in the early years (P-2)

Growth in achievement for students who are learners of English (ESL students) and refugees for March 2009 to September 2010 for each MOI number domains is recorded in Appendix H.

Growth in achievement for ESL and refugee students is greater than the ENRP benchmark for Terms 2 and 3 in 2009 and 2010 for all domains. For ESL students the high level of growth achieved in 2009 is sustained during these terms in Terms in 2010. There is a marked slow-down in growth for the summer terms from September 2009 to March 2010 for both ESL and refugee students though growth in counting achievement over the summer months is just below the benchmark for refugee students.

As expected, growth in achievement is greatest for counting and lowest for multiplication and division in each of the six month periods for both ESL and refugee students.

The Pilot has had a positive effect on the achievement of ESL students for place value and additive thinking as the gap in these domains narrowed significantly in the period from March to September 2010 ($F= 7.046$, $p<0.05$ and $F= 11.519$, $p<0.05$ respectively). For place value the gap narrowed from 0.31GPs to 0.17GPs and for additive thinking it narrowed from 0.32GPs to 0.18GPs as illustrated in Figures 19 and 20.

The achievement gap between refugee and non-refugee students is statistically significant for both place value and additive thinking ($F= 8.574$, $p<0.05$ and $F= 8.549$, $p<0.05$ respectively). The gap widened slightly for both place value and addition and subtraction to be 0.34GPs and 0.47GPs respectively in September 2010. See Figures 20 and 21.

6.5.2 Literacy and numeracy in primary schools

Growth in achievement for refugee and ESL primary students is recorded in Tables 21 and 22. Reading and numeracy growth in achievement is significantly greater than the expected rate of growth for both cohorts of students during Terms 2 and 3 in 2009 and 2010. Though growth slows for the summer semester, it is not significantly different from expected growth.

Figures 23, 25, 27 and 29 show that the achievement gaps between refugees and English language learners and other students closes between March 2009 and September 2010.

For reading, the achievement gap between ESL and non-ESL students closes from a difference of more than 6 months (0.29 VELS points) in March 2009 to a difference less than 6 months (0.23 VELS points) in September 2010, though this outcome is not statistically significant.

The gap between achievement of ESL and non-ESL students closes further for number, from 0.39 VELS points in March 2009 to 0.27 VELS points in September 2010. This finding is statistically significant ($F=22.802$, $p<0.05$).

The gap between achievement of refugee and non-refugee students also closes and is statistically significant ($F=5.436$, $p<0.05$). It closed from 0.71 VELS points to 0.48 VELS points from March 2009 to September 2010, equivalent to almost 6 months growth (Figure 28).

According to NAPLAN data (see Table 23) mean growth in achievement for primary ESL Pilot students was greater than for non-ESL Pilot students and for all Victorian students for all literacy and numeracy domains. The Pilot has therefore had a positive impact on achievement for these primary students.

6.5.3 Literacy and numeracy in secondary schools

Growth in reading achievement for refugee students was greater than expected in Terms 2 and 3 in 2009 (see Table 21). Growth in reading achievement slipped during the summer terms and was at the expected rate in Terms 2 and 3 in 2010.

Secondary refugee and ESL students were the only cohorts of students to record significantly greater than expected growth in numeracy over the summer terms (see Table 22). It is not clear how this was achieved given the trends for other students.

The high rates of growth for secondary ESL students during the summer terms are clearly visible in Figures 24 and 26. For reading the gap between ESL students and non-ESL students closed by more than six months from a gap of almost two years (0.94 VELS points) to over one year (0.60 VELS points). This finding is statistically significant ($F=11.104$, $p<0.05$).

The closing of the gap between ESL and non-ESL students at the beginning of the Pilot was even greater for number. The gap in achievement between ESL students and non-ESL students was almost two years (0.81 VELS points) in March 2009 but closed to less than one year (0.43 VELS points) in September 2010. This finding is statistically significant ($F=35.930$, $p<0.05$).

These results accord with the NAPLAN results (see Table 23). ESL Pilot students in both secondary NAPLAN cohorts achieved higher growth than other Pilot students and all Victorian students for all literacy and numeracy NAPLAN domains.

The Pilot also had a positive impact on secondary refugee students (Figures 28 and 30). Improvements made in reading and number achievement were significantly significant ($F= 9.337$, $p<0.05$ and $F=47.898$, $p<0.05$ respectively). The gap in reading achievement closed from more three years (1.54 VELS points) to two years (1.07 VELS points). The gap in number achievement closed from more than two years (1.17 VELS points) to just over a year (0.48 VELS points).

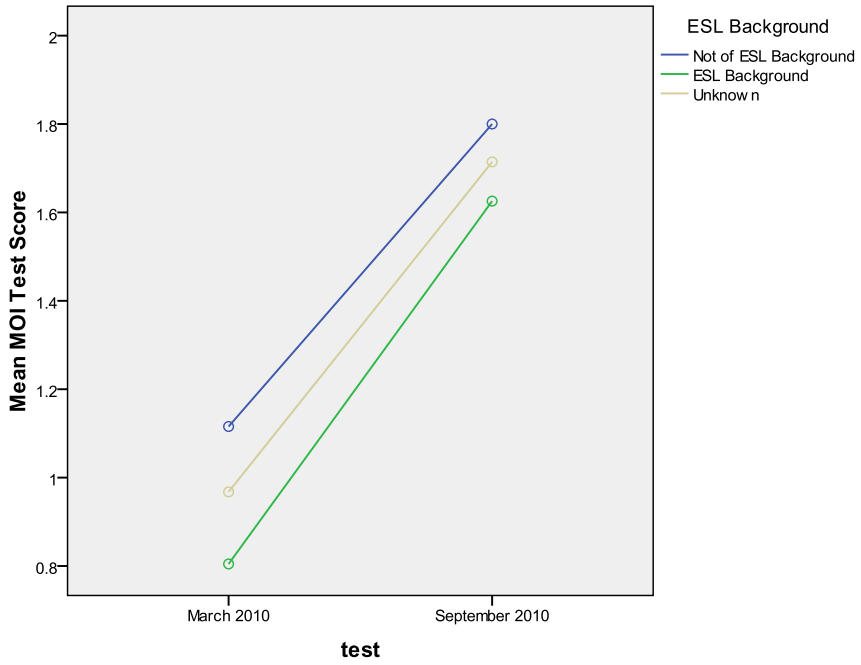


Figure 19: Place Value mean scores (MOI growth points) for ESL and non-ESL students March to September 2010

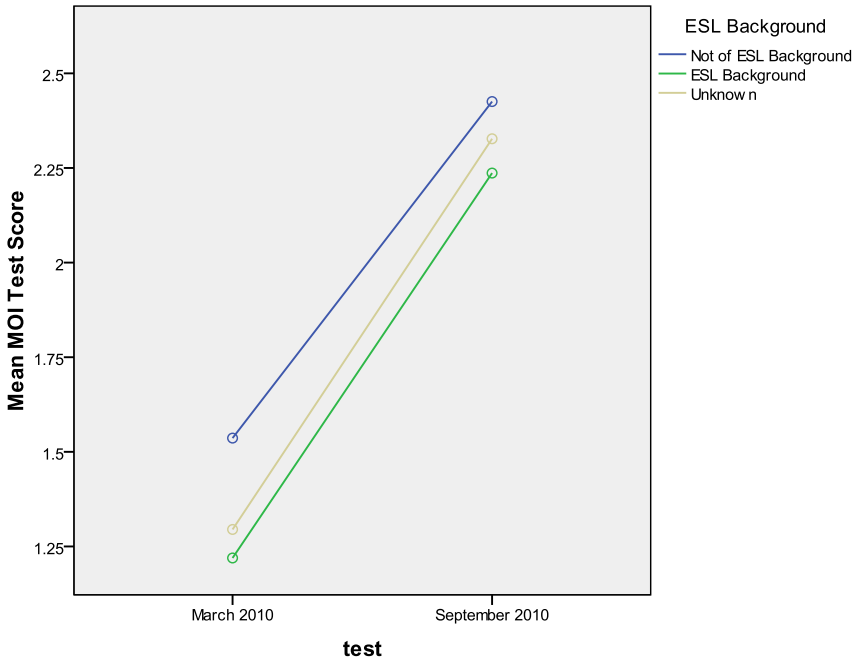


Figure 20: Addition and subtraction mean scores (MOI growth points) for ESL and non-ESL students March to September 2010

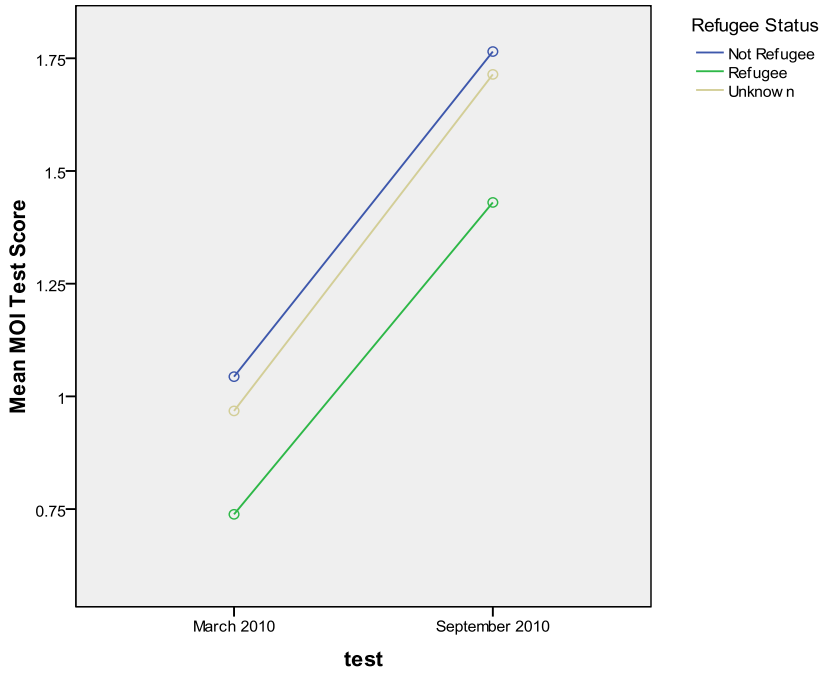


Figure 21: Place Value mean scores (MOI growth points) for refugee and non-refugee students March to September 2010

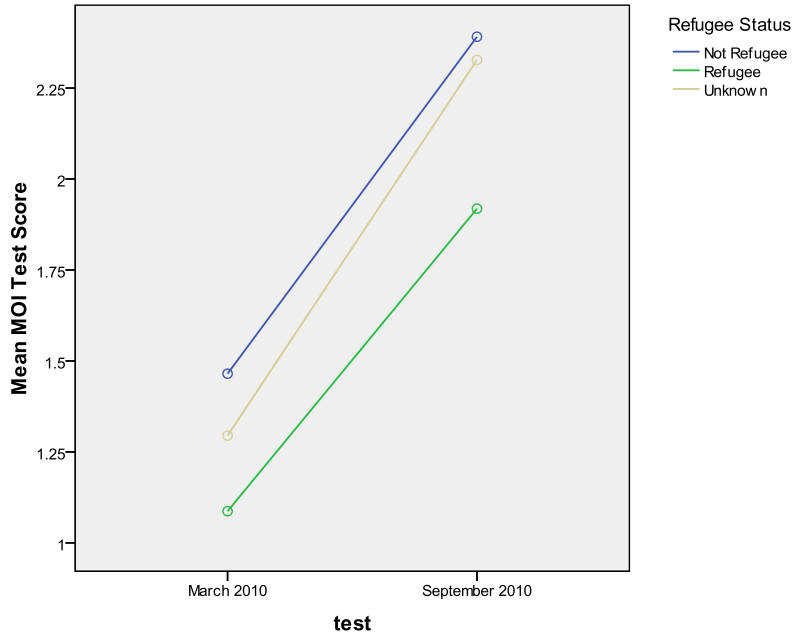


Figure 22: Addition and subtraction mean scores (MOI growth points) for refugee and non-refugee students March to September 2010

Table 21: Growth in reading achievement for Refugee and ESL students, March 2009 – Sept 2010

Yr (2010)	N	Mar09 – Sep 09 Mean Growth	Sig > 0.25	Sept 09-Mar10 Mean Growth	Sig > 0.25	Mar 10-Sept 10 Mean Growth	Sig > 0.25
Refugee students							
4-10	127	0.3622	■	0.2232	■	0.3992	▲
4-6	89	0.3101	■	0.2607	■	0.4270	▲
7-10	38	0.4842	■	0.1355	■	0.3342	■
ESL students							
4-10	595	0.3618	▲	0.2272	■	0.3848	▲
4-6	506	0.3523	▲	0.2427	■	0.4078	▲
7-10	89	0.4157	▲	0.1393	■	0.2539	■

Table 22: Growth in number achievement for Refugee and ESL students, March 2009 – Sept 2010

Yr (2010)	N	Mar09 – Sep 09 Mean Growth	Sig > 0.25	Sept 09-Mar10 Mean Growth	Sig > 0.25	Mar 10-Sept 10 Mean Growth	Sig > 0.25
Refugee students							
4-10	98	0.3633	▲	0.3388	■	0.3796	▲
4-6	59	0.4475	▲	0.1864	■	0.4373	▲
7-10	39	0.2359	■	0.5692	▲	0.2923	■
ESL students							
4-10	230	0.3396	▲	0.2889	■	0.3074	■
4-6	158	0.3728	▲	0.2256	■	0.3630	▲
7-10	72	0.2667	■	0.4278	▲	0.1854	■

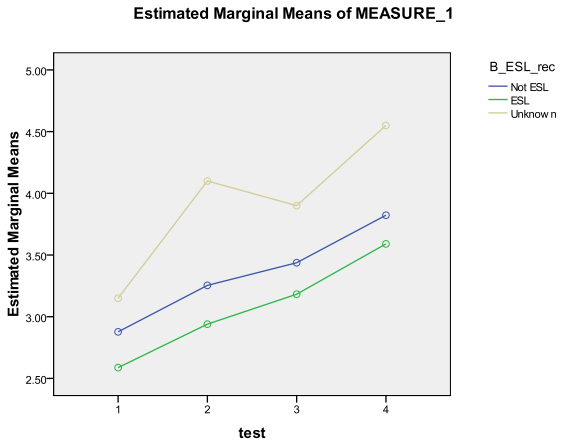


Figure 23: Mean reading scores for ESL and non-ESL primary students

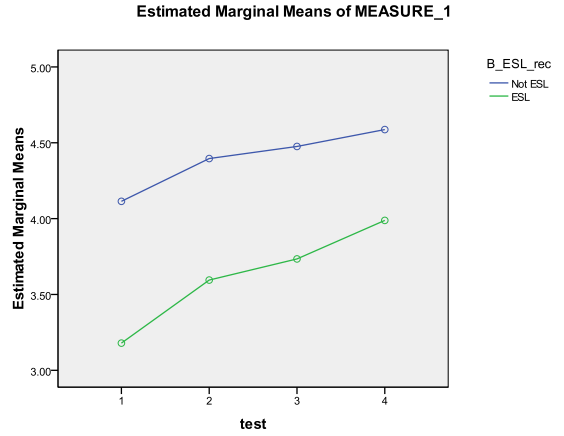


Figure 24: Mean reading scores for ESL and non-ESL secondary students

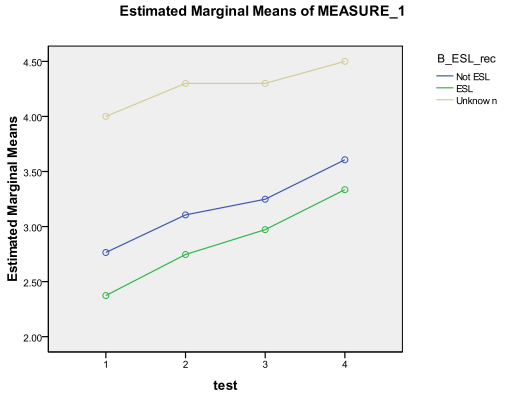


Figure 25: Mean number scores for ESL and non-ESL primary students

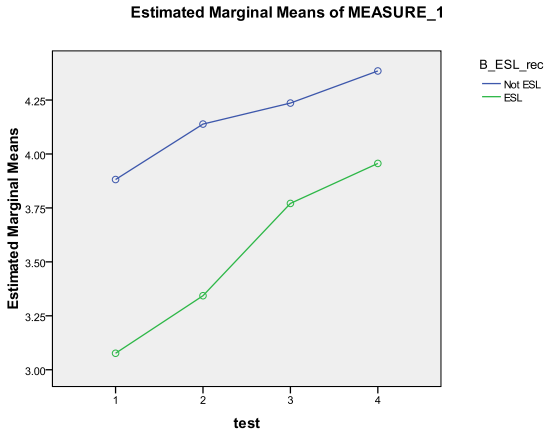


Figure 26: Mean number scores for ESL and non-ESL secondary students

Table 23: Mean growth in achievement, NAPLAN assessment 2008 to 2010 for EDL students in Pilot schools and others in Pilot schools and Victoria (scale score)

		Pilot: ELL students			Pilot: Other students			Victoria	
Yr (2010)	Domain	N	Mean growth	SD	N	Mean growth	SD	Mean growth	SD
Yr 3 to Yr 5	Reading	566	94.20	56.94	1809	88.29	55.35	82.3	58.2
Yr 3 to Yr 5	Writing	562	78.02	62.5	1807	75.6	64.66	70.2	64.5
Yr 3 to Yr 5	Spelling	565	86.07	41.13	1815	84.33	38.66	77.9	40.9
Yr 3 to Yr 5	Gr & Punct	565	100.24	69.94	1815	87.59	71.29	83.5	73.4
Yr 3 to Yr 5	Numeracy	565	100.34	52.7	1802	91.49	50.98	85.5	53.3
Yr 5 to Yr 7	Reading	318	65.03	47.4	1125	58.76	48.07	57.9	49.7
Yr 5 to Yr 7	Writing	315	53.84	69.88	1126	41.15	71.46	39	71.5
Yr 5 to Yr 7	Spelling	318	57.09	37.68	1132	51.52	37.82	54.1	37.3
Yr 5 to Yr 7	Gr & Punct	318	44.79	69.25	1132	32.18	68.99	27.4	68.8
Yr 5 to Yr 7	Numeracy	314	72.08	44.84	1117	64.28	43.38	64.7	44.4
Yr 7 to Yr 9	Reading	368	48.96	45.39	1402	39.70	47.99	38.3	44.5
Yr 7 to Yr 9	Writing	368	28.81	81.35	1411	22.06	84.5	28.3	80.1
Yr 7 to Yr 9	Spelling	372	44.44	42.29	1417	35.22	40.82	38.1	37.8
Yr 7 to Yr 9	Gr & Punct	372	58.06	61.96	1417	46.7	61.83	46.3	61.1
Yr 7 to Yr 9	Numeracy	365	45.57	39.85	1406	37.08	38.19	38.9	39.2

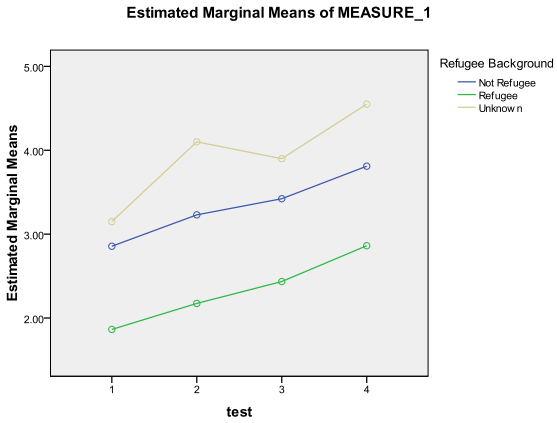


Figure 27: Mean reading scores for refugee and non-refugee primary students

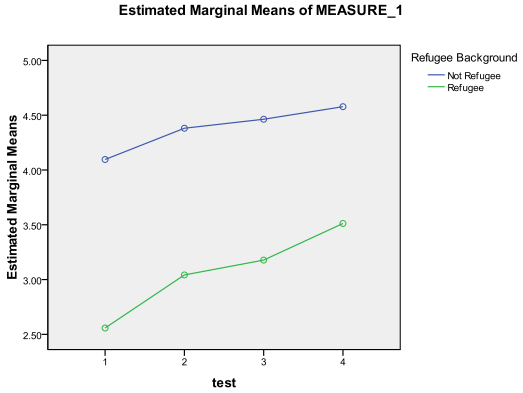


Figure 28: Mean reading scores for refugee and non-refugee secondary students

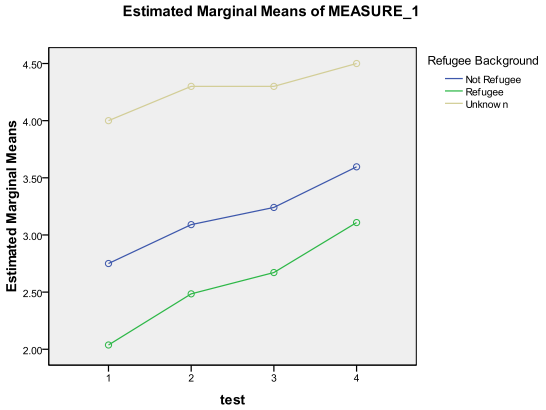


Figure 29: Mean number scores for refugee and non-refugee primary students

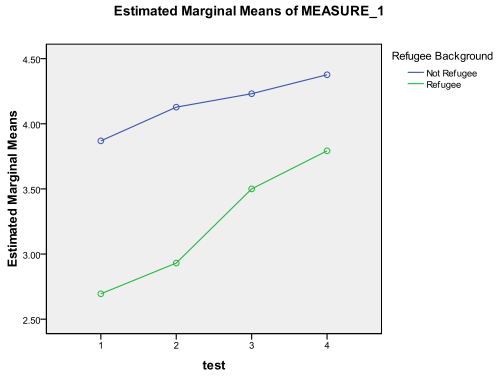


Figure 30: Mean number scores for refugee and non-refugee primary students

6.6 Growth in achievement for female and male students

6.6.1 Numeracy in the early years (P-2)

Mean scores and growth in achievement for place value and addition and subtraction for female and male students for March 2010 to September 2010 is illustrated in Figures 31 and 32. Growth for female and male students is recorded in Appendix H.

Mean growth is greater than the ENRP benchmark for both females and males for the period from March 2010 to September 2010.

Male achievement is significantly greater than female achievement for both place value and additive thinking ($F=19.411$, $p<0.05$ and $F=4.361$, $p<0.05$ respectively). The effect of the Pilot has been to widen the achievement gap between males and females. The gap widens from 0.09GPs to 0.15GPs for place value and 0.05GPs to 0.1GPs for addition and subtraction from March to September 2010. While these changes appear to be small they are statistically significant ($F=5.454$, $p<0.05$ and $F=4.260$, $p<0.05$ respectively).

6.6.2 Literacy and numeracy in years 3-10

Mean scores for female and male students from March 2009 to September 2010 are illustrated in Figures 17 - 20.

Gender differences in reading achievement for primary and secondary students are statistically significant. Figures 33 and 34 show males on average are behind their female peers and illustrate the different rates of growth for female and male students in each period.

For both primary and secondary students reading growth slows more for males than females over the summer terms. For secondary students the gap in reading achievement remained unchanged overall with males, on average, just over six months behind their female peers (0.30 VELS points). For primary students the gap was about the same margin but widened slightly over the 18 months of the data collection (0.31 to 0.36 VELS points).

Gender differences for number are much smaller and favour males but are only statistically significant for primary students (Figures 34 and 35). For secondary students the gender difference is negligible at the beginning and end of the 18 month period; for primary students the gap widens in favour of males (0.05 VELS points in March 2009 to 0.10 VELS points in September 2010). The widening gap is statistically significant ($F=3.868$, $p<0.05$).

The different rates of growth for male and female students indicate the way in which classroom approaches support their learning and how they are affected by the summer slow-down. Growth in reading is highest for males from March to September and higher than for females during this period. This is also the case for number for primary students. On the other hand, secondary females clearly benefit from classroom approaches since their growth in number achievement is higher than for males during Terms 2 and 3 and lower in Terms 4 and 1.

We will consider the way in which participation in various student interventions may have influenced these outcomes in Chapter 7.

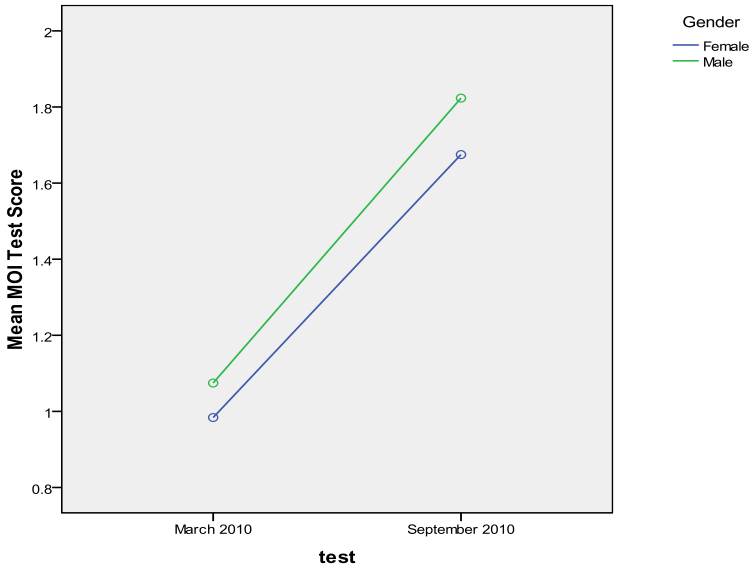


Figure 32: Place Value mean scores (MOI growth points) for female and male students March to September 2010

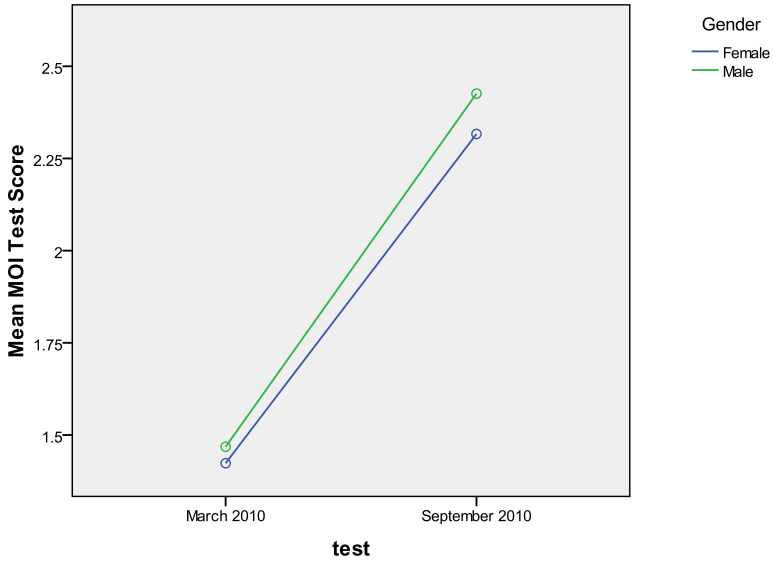


Figure 31: Addition and subtraction mean scores (MOI growth points) for female and male students March to September 2010

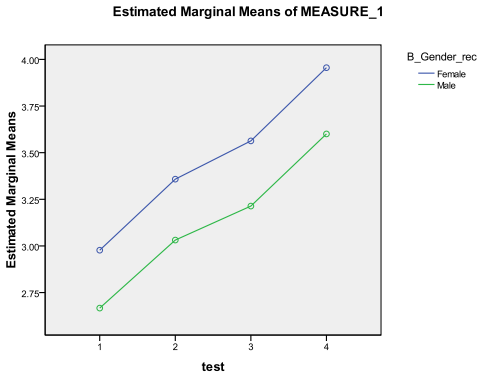


Figure 33: Mean reading scores for female and male primary students March 2009 – September 2010

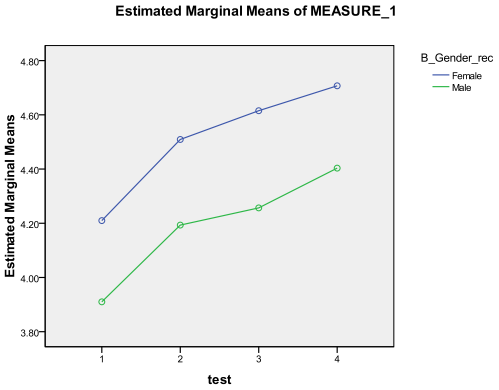


Figure 34: Mean reading scores for female and male secondary students March 2009 – September 2010

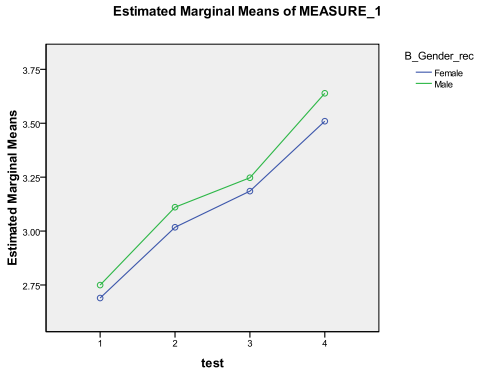


Figure 35: Mean number scores for female and male primary students March 2009 – September 2010

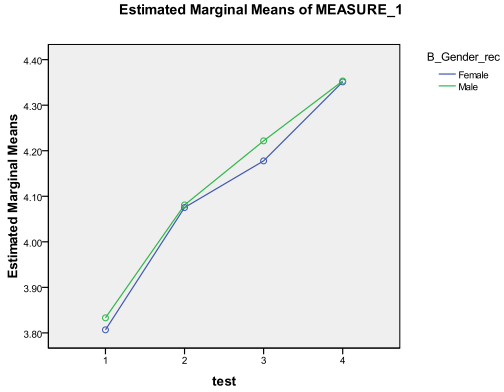


Figure 36: Mean number scores for female and male secondary students March 2009 – September 2010

6.7 Similarities and differences of impact on particular student cohorts

6.7.1 Numeracy in the early years (P-2)

Growth in place value and addition and subtraction achievement for the student cohorts are illustrated in Figure 37 and recorded in Appendix H.

As described in the previous sections of this chapter growth for each of the cohort groups follow the trend for all students in the Pilot over the three six month assessment periods of the Pilot: much higher than ENRP benchmark growth in the first six months, a marked slow-down in growth in the summer months and higher than ENRP benchmark growth in the final six months.

In the first six months (March 2009 to September 2009) growth is similar for each student cohort however not sufficient to close the gap on non-marginalised students since growth is lower than that recorded for all Pilot students, especially for both place value.

In the summer terms (September 2009 to March 2010) growth slows for all cohorts and is lower than the ENRP benchmark. Growth in place value achievement during these months is greater for the lowest SFO, ESL and refugee students than for all Pilot students. Growth in additive thinking is greater for ESL and refugee students than for all students in the Pilot.

In the last six months of the Pilot (March 2010 to September 2010) growth in place value achievement is greater for the lowest SFO and ESL students than for all Pilot students. Growth in additive thinking is greatest for ESL students.

The Pilot has been most effective in improving the achievement of ESL students in the early years since the gap between ESL and non-ESL students closed significantly.

6.7.2 Literacy and numeracy in years 3-10

Growth in reading and number achievement for student cohorts of interest is illustrated in Figure 38.

Growth in achievement for the different cohorts of primary students follows a common trend, especially for reading. ESL and refugee students recorded the highest growth rates for September 2009 to September 2010. Low socio-economic and Koorie students recorded the highest growth for reading from March 2009 to September 2009. Growth in number achievement was highest for low socio-economic and refugee primary students during Terms 2 and 3 of both years.

Growth in achievement for the different cohorts of secondary students is much more variable for each six-month period. Koorie, refugee and ESL students recorded the highest growth for reading but this rate of growth was not sustained for each cohort over the period of the Pilot.

Similarly growth for low socio-economic secondary students for number which was highest in the first six months was not sustained over the 18 months of the Pilot. However the graphs clearly show that refugee and ESL students recorded the highest rates of growth from September 2009 to September 2010.

The high proportion of refugee and ESL students in the target schools in three of the networks may have contributed to realisation of expected growth in achievement over the six-month summer terms. This finding will be explored further in Chapter 7.

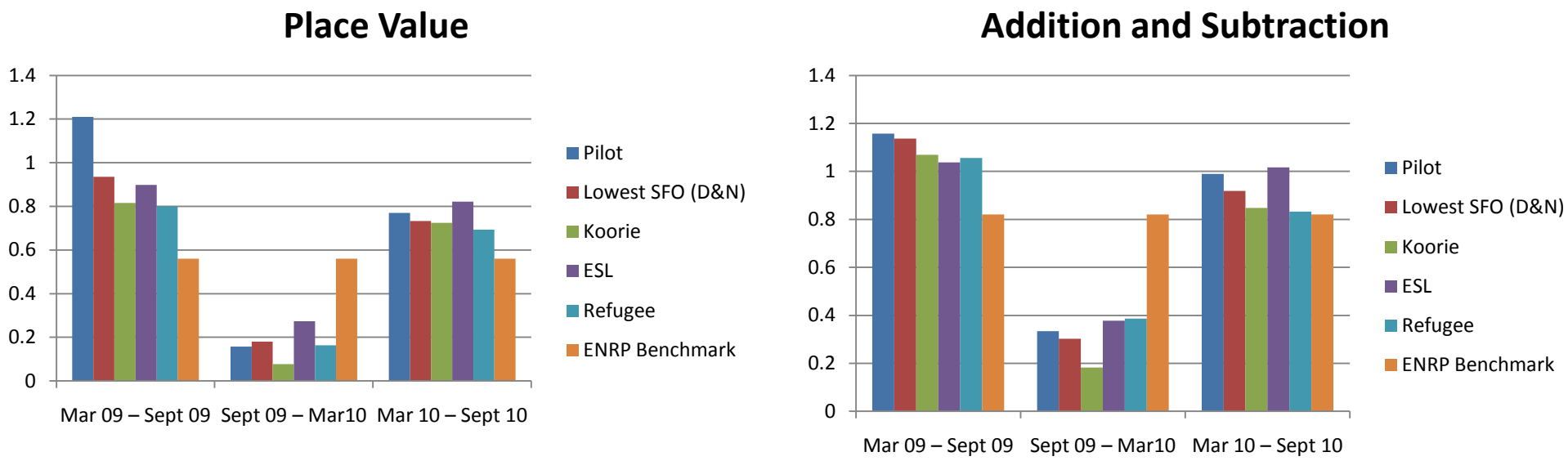


Figure 37: Growth in achievement in place value and addition and subtraction for students in the early years (P-2) by student

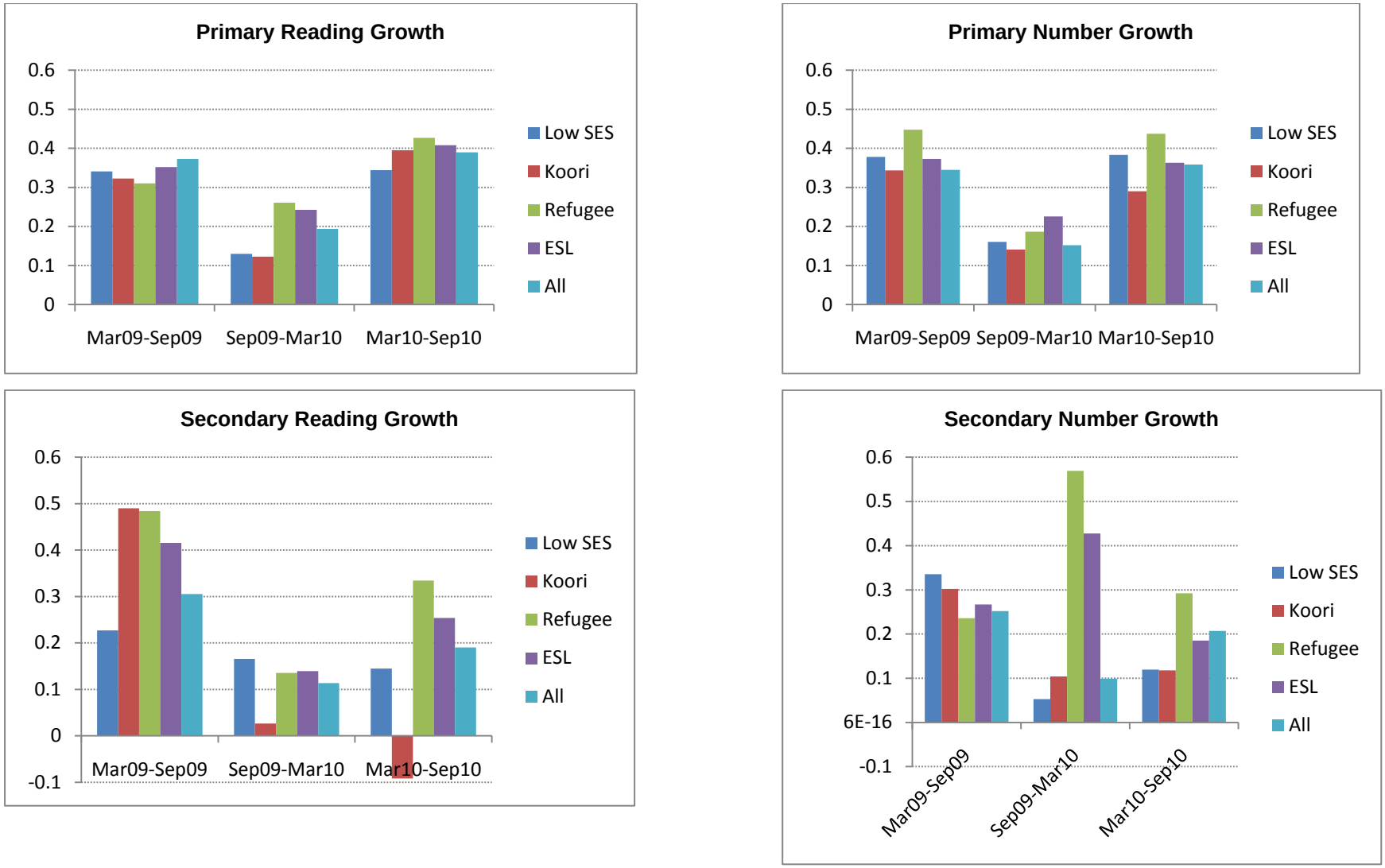


Figure 38: Growth in reading and number achievement for primary and secondary students by cohort group

6.8 Key findings

The assessment data reveal that the Pilot has had a positive impact on disadvantaged cohorts of students and especially primary students. This was most evident in the comparison of NAPLAN results with achievement of disadvantaged cohorts of Pilot students improving relative to that of all Victorian students.

In general, the analysis of MOI data found that growth in number achievement for disadvantaged students was similar to growth for all students in years P-2.

The Pilot had a positive effect on ESL students in the early years since their number achievement improved significantly compared to non-ESL students.

In general the findings from the analysis of VCAA *On Demand* assessment results show growth in literacy and numeracy achievement for disadvantaged students was similar to that of other students in the Pilot schools, again especially for primary cohorts of students.

Refugee and ESL students recorded the highest rates of growth in achievement among the disadvantaged secondary cohorts of students.

Achievement in readings improved significantly for secondary refugee students relative to non-refugee students. The Pilot had a significant impact on number achievement for both refugee and ESL students. Achievement of both primary and secondary students in number improved relative to non-refugee and non-ESL students.

Improvement in achievement for low socio-economic students and Koorie students in the first period of the Pilot was not sustained over the 18 months with the gap in achievement with high socio-economic students and non-Koorie students widening slightly in each instance. It is not known if this represents an improvement in the rate of growth in achievement on the period prior to implementation of the Pilot. Comparison using the NAPLAN data suggests that it does.

Gender differences favoured females for reading at all levels and males for number at all primary levels. These differences were statistically significant. The gap in number achievement between females and males widened for students in the early years (P-2) and for the other primary years (3-6) during the Pilot. These findings were statistically significant.

Teachers in Pilot schools have implemented student-centred approaches in their classrooms and these can be seen to have improved the learning of all students. While conscious of the diverse cultures of their students, connecting learning with students' culture and knowledge for sustained improvement in outcomes is a continuing challenge for teachers and schools. Particular student interventions may play a role and these will investigated in the next chapter. However, affirming teaching and learning approaches for low socio-economic and Koorie female and male students requires further attention and development by teachers.

7.0 Effectiveness of Particular Interventions and the Multi-faceted Approach

7.1 Introduction

We argued in Chapter 4 that the Pilot can be viewed as a multi-faceted approach to school improvement that includes numerous and various interventions implemented at the network, cluster, school, teacher or student level.

The four networks of Victorian government schools were targeted for intervention through the Pilot since schools in these networks were typically underperforming and have low socio-economic school communities and large proportions of other disadvantaged cohorts of students. Pilot funding was used to resource and support these networks. These resources included Regional Network Coordinators, Network Improvement Coordinators and Regional Literacy and Numeracy Leaders and Consultants along with the funding of professional learning programs designed and delivered for school leaders, school literacy and numeracy leaders and teachers. The impact of the network level of intervention on all schools and particular cohorts of students in the Pilot has been discussed in the previous two chapters.

Three further levels of intervention occurred during the Pilot at the school, teacher and student level. Within each network schools were targeted for intervention and support. These schools were provided with additional support and resources including regional literacy and numeracy coaches and Network Improvement Coordinators as well as additional funding for student intervention programs. Since the Pilot began, a number of schools in the four networks have received additional funding through the DEEWR National Partnerships. This additional source of funding also enabled the two DEECD regions to provide additional resources and support to target schools. We have not identified the schools that received individual school National Partnership Grants but recognise that this factor may create ambiguity in our statistical analysis. It is likely that these schools were targeted for support through the Pilot in any case but the National Partnerships funding illustrates the complexity of evaluating the impact of particular interventions.

In this chapter we describe these interventions and evaluate the impact of the school (including teacher) and student interventions. We will draw upon data collected during the in-depth study and the development of school cases as well as responses to a questionnaire about student intervention programs sent to all Pilot schools.

In this chapter we will focus on the following evaluation questions:

> Which interventions provide or support the greatest improvement in student outcomes in literacy and numeracy?
> Which interventions have had the greatest (and least) impact and are those that had the greatest impact scalable?
> Can relatively high or low levels of student outcomes improvement be linked to particular strategies or factors?
> Which interventions are most effective in raising student achievement in literacy and numeracy in low SES schools and for students from Koorie, ESL, New Arrivals and refugee backgrounds? In what circumstances are these improvements achieved?

Literacy and numeracy achievement for students in target schools will be compared with achievement of students in non-target schools. We will compare the achievement outcomes for students in student intervention programs with other students and we will also group these interventions according to design features of these interventions to compare their effectiveness.

We also present the findings from our discussion with principals, RNLs, NICs and regional coaches about the achievement data for the September 2009 to March 2010 period and consider the factors impacting on these results.

7.2 Targeted schools

One of the interventions included in the multi-faceted approach of the DEECD Literacy and Numeracy Pilot in Low SES School Communities was to target schools and clusters of schools within each network with particular needs. These schools were identified based on a range of data about the school. The criteria related to the key objectives of the Pilot and included a high average school SFO index and a high proportion of students who were not at or above expected VELS level (in general more than 40% of students). The targeted schools also had high enrolments of Koorie students, ESL students, refugees and students recently arrived in Australia.

Almost half of the schools in the Pilot were targeted. Table 24 provides some general information about the communities of the schools in the Pilot and the schools that were targeted in each network. The demographic information for the schools is based on 2008 data and we recognise that both student enrolments and demographic characteristics have changed substantially in some schools. The target schools are identified in Appendix I.

More than half of the students in the Pilot networks were enrolled in schools that were targeted. The mean SFO for the targeted schools was higher than the mean in each network (except Deer Park Sunshine Network) and approximately 80% of the Koorie, refugee, ESL and newly arrived students in the Pilot schools are enrolled in the targeted schools.

Table 24: Demographic information of targeted schools and all Pilot schools by network (2008 data)

		Shepparton	Ranges	DP / Sun	Wyndham	All schools
All schools	Number	21*	24*	17*	18*	75
	Students (n)	5982	4644	5305	11936	27867
Target schools	Number	6	6	8	14	34
	Students (n)	3,611	2,871	4,024	9,819	20,325
SES (SFO index)	All (Mean)	0.490	0.488	0.753	0.581	0.565
	Target (Mean)	0.682	0.524	0.742	0.597	0.636
Koorie students	All (n)	414	91	40	147	692
	Target (n)	336	47	24	127	534
Refugee students	All (n)	128	2	182	95	407
	Target (n)	111	0	123	90	324
New Arrival students	All (n)	219	1	451	383	1054
	Target (n)	176	0	307	367	850
ESL/LBOTE students	All (n)	331	15	1247	791	2384
	Target (n)	269	5	843	728	1845

***** Includes special schools.

7.2.1 Interventions for targeted schools

Targeted schools received additional support through the appointment of a regional coach to work with staff in the school and/or funding for student intervention programs. Literacy and numeracy coaches were assigned to support schools in the Shepparton and The Ranges networks. Also a regional Koorie

coach worked with schools in the Shepparton Network. During 2009 only regional literacy coaches were assigned to work in schools in Wyndham and Deer Park Sunshine Networks, and in 2010 regional numeracy coaches began to work with schools in these networks. In addition the Primary Maths Specialist program operated in three schools in the Deer Park Sunshine Network and a numeracy consultant (0.4) worked on this program with teachers at these schools. Many schools in the networks also appointed staff within their school to act as coaches of teachers for literacy or numeracy and these staff were provided training by the region and the Bastow Institute. We have not listed schools with school-based coaches as targeted schools unless they also meet the other criteria.

Regional Network Leaders and Network Improvement Consultants (NICs) while supporting all schools in their network established particular relationships and structures to support leaders and teachers in the target schools. In the Shepparton Network the six targeted schools worked together as one cluster and the three targeted primary schools worked collaboratively as a neighbourhood of primary schools. The Shepparton NIC (appointed for 2010 and formerly one of the regional numeracy coaches in the network) facilitated the various professional learning teams established for this neighbourhood of primary schools. The NICs and other regional leaders and consultants also worked with teams of teachers across schools within their network to support teacher training and professional learning for the implementation of particular student intervention programs described later in this chapter.

Literacy and numeracy coaches coached individual teachers and literacy and numeracy leaders and supported and facilitated professional learning teams in schools, clusters and networks.

In Chapter 4 we argued that Literacy and Numeracy Coaches, Network Improvement Consultants, Regional Network Leaders and Regional Literacy and Numeracy Leaders or Consultants contributed to building leadership and teacher capacity and agency through the numerous and diverse interventions targeting networks, clusters, schools and teachers. In Chapter 5 we explained how these interventions impacted on the practice of teachers, especially those in targeted schools.

7.2.2 Impact of targeting schools on student reading achievement

To evaluate the impact of targeting schools as a strategy in the Pilot we compared growth in achievement for students in targeted schools with growth for students in non-targeted schools.

In the Process Evaluation Report on the first phase of the Pilot we reported that there was a small difference in growth in reading achievement favouring targeted primary schools for March 2009 to September 2010 and a statistically significant difference favouring non-target schools for growth in number achievement.

Results of comparisons for students in target and non-target schools are shown in Table 25. Results for primary students who completed all four tests from March 2009 to September 2010 are included as are results for primary students and secondary students who completed the March 2010 and September 2010 tests. There were insufficient secondary students in the sample to make reliable comparisons from March 2009 to September 2010.

For primary students who completed all four assessments, total growth in reading achievement for students in target schools over 18 months was greater than for students in non-target schools. Hence the reading gap in achievement between students in target and non-target schools narrowed slightly from over six months behind (0.32 VELS points) in March 2009 to just over six months by September 2010 (0.28 VELS points). The difference between mean scores for primary target school students and primary non-target school students was statistically significant. Figure 39 shows that the most gains were made in the six months from March 2010 to September 2010.

For the much larger sample of students who completed both assessments in 2010, the difference in reading achievement between target school primary students and non-target school primary students was much smaller and less than six months behind (0.18 VELS points) but still statistically significant. The gap narrowed slightly during this period (see Figure 40).

Table 25: Mean growth in reading achievement for students in target and non-target schools

	N	March 09 Mean	Sept 10 Mean	Mean Growth	N	March 10 Mean	Sept 10 Mean	Mean Growth
				Primary				
Target	1455	2.677	3.649	0.972	3013	3.226	3.586	0.360
Non-target	1264	2.993	3.931	0.938	2228	3.415	3.769	0.354
				Secondary				
Target	-				3484	4.342	4.517	0.175
Non-target	-				505	4.505	4.803	0.298

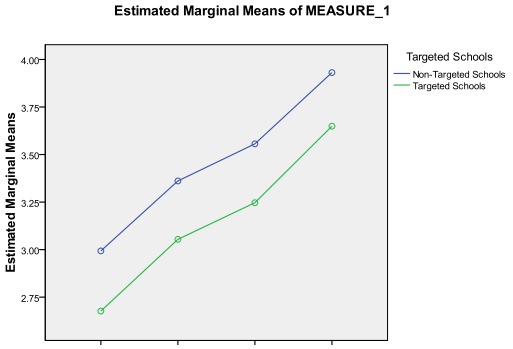


Figure 39: Mean reading scores for targeted and non-targeted primary school students (March 2009 to September 2010)

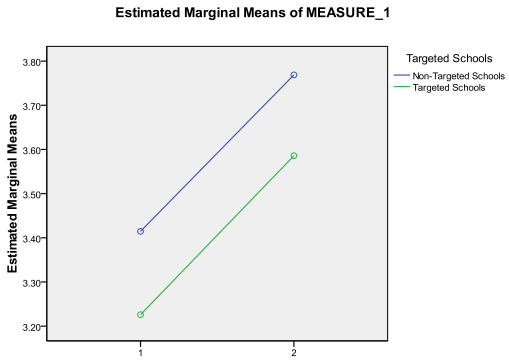


Figure 40: Mean reading scores for targeted and non-targeted primary school students (March 2010 to September 2010)

The comparison of mean growth in reading achievement between target and non-target secondary schools (see Table 25) confirms earlier findings that the Pilot is yet to impact on the literacy achievement of secondary students from low socio-economic school communities. Figure 41 illustrates the widening gap in reading achievement between students in target and non-target schools

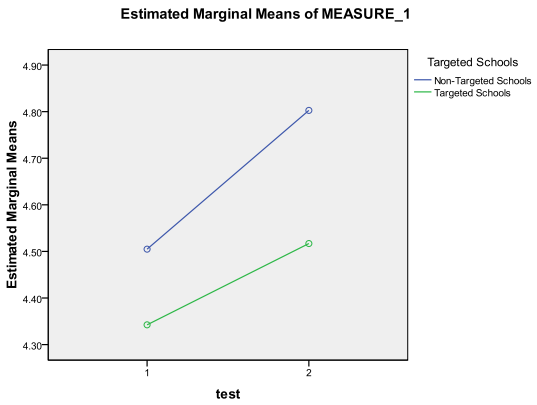


Figure 41: Mean reading scores for targeted and non-targeted secondary school students (March 2010 to September 2010)

7.2.3 Impact of targeting schools on student number achievement

The gap in number achievement for students in target schools compared to non-target schools widened from March 2009 to September 2010. At the beginning of the Pilot students in targeted schools were six months behind (0.25 VELS points) students in non-target schools and in September 2010 they were more than six months behind (0.32 VELS points). The difference between mean scores for primary target school students and primary non-target school students was statistically significant. The lack of focus on numeracy in the Western Metropolitan Region Networks (Wyndham and Deer Park Sunshine) during 2009 may account for this overall result.

During 2010 the gap between primary students in target schools and non-target schools did not change as growth was almost equivalent for the much larger sample of students completing the two assessments. Students in target schools were less than six months behind non-target schools (0.16 VELS points).

Table 26: Mean growth in number achievement for students in target and non-target schools

	N	March 09 Mean	Sept 10 Mean	Mean Growth	N	March 10 Mean	Sept 10 Mean	Mean Growth
				Primary				
Target	547	2.568	3.385	0.817	2979	3.020	3.375	0.355
Non-target	817	2.822	3.703	0.881	2082	3.180	3.536	0.356
				Secondary - Number				
Target					2888	4.011	4.182	0.171
Non-target					635	4.047	4.415	0.368

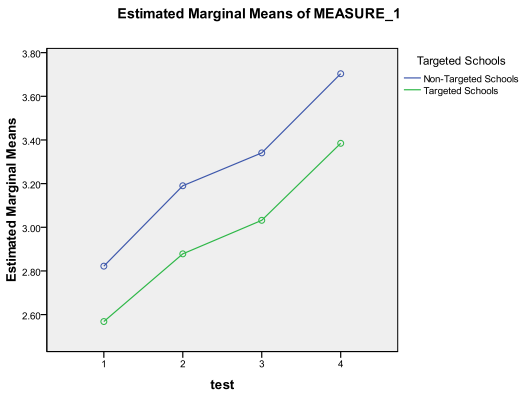


Figure 42: Mean number scores for primary targeted and non-targeted school students (March 2009 to September 2010)

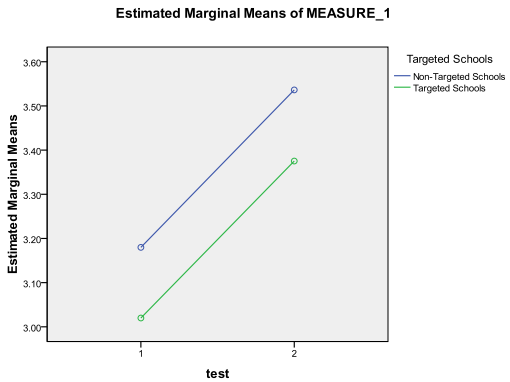


Figure 43: Mean number scores for primary targeted and non-targeted school students (March 2010 to September 2010)

Targeting secondary schools has been less effective to date. Growth during 2010 for secondary students in non-targeted schools was much greater than for secondary students in target schools. From almost no gap in March 2010 (0.04 VELS points) the gap widened so that secondary students in targeted schools were almost six months behind (0.23 VELS points). This is very evident in Figure 44.

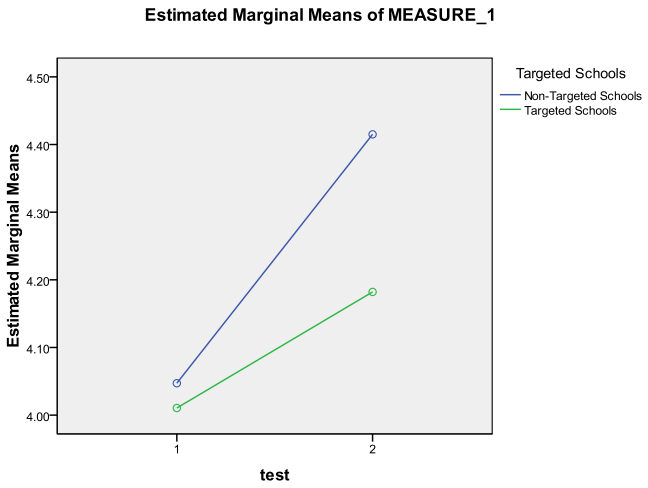


Figure 44: Mean number scores for secondary targeted and non-targeted school students (March 2010 to September 2010)

7.3 Student interventions

7.3.1 Student intervention programs for literacy and numeracy

Data about the various student intervention programs implemented in Pilot schools were gathered through questionnaires distributed to all schools (see Appendix B), through the in-depth study of successful Pilot schools, observation of various professional learning activities occurring in networks and schools and collection of documentation from teachers, coaches or NICs.

The term 'intervention' is not used by teachers and generally teachers did not discuss intervention programs when describing their teaching. Instead classroom teachers referred to 'support' for individual and small groups of students. Literacy and numeracy leaders provided information about school intervention programs either during interviews conducted as part of the in-depth study or when completing the questionnaire about student intervention programs. Teachers and leaders recognise that student intervention refers to more than 'withdrawal' programs.

A variety of interventions/supports has been implemented to meet student need. Programs categorised as 'support in the classroom' involve either a trained tutor or an experienced teacher. They may be one-to-one or one to small group. Withdrawal intervention programs include those that are well known and documented formal programs, temporary in nature while staff or tutors are trained (eg. training in Hume Numeracy Intervention) or informal and opportune. The latter tend to be short-term and targeted on specific knowledge or skill.

Table 27 provides an overview of the types of literacy intervention programs identified by schools that responded to the questionnaire on intervention programs. The modalities of these programs and the number of students who participated in each program during 2010 are also documented in the table. In some cases schools provided information about the students participating in an intervention but either did not identify the particular intervention for each student or did not complete or return the questionnaire. Hence there are many students included in the 'other' category and some of these students may be participating in one of the named programs.

From the table it is evident that different schools deliver the same or similar programs (e.g. YALP) in different fashion, including whether students are withdrawn, whether the teaching occurs on a 1:1 basis

and whether teaching occurs daily or less often. The great majority of programs represented in the table involve withdrawing the student from the classroom. Most programs are also delivered on a 1:1 basis, and many involve daily contact with the student. This may reflect a bias in what is considered an intervention by schools completing the questionnaire, i.e. programs that involve withdrawal from the classroom were listed as interventions, while other programs that occur in the classroom were not considered an intervention by some schools and perhaps regarded as support. Schools that nominated classroom tutoring as an intervention for literacy did not provide clear descriptions of these programs.

Table 27: Participants and modalities of student literacy intervention programs

Program Name	N (P-2)	N (3-10)	N (schools)	1:1 teaching	Withdrawn	Daily
Classroom Tutoring	6	18		?		
Deer Park North Literacy Intervention	11	0		✓	✓	✓
Early Language	26	0			✓	✓
ESL	12	5				
ESL New Arrivals	6	2			✓	
Hume Literacy Intervention Strategy	6	58	2		✓	
Individualised Learning Plans	4	15				✓
Making a Difference	3	41			✓	
Oral Language	13	0				
Other	51	61		?	?	?
Reading Recovery *	97	19	13	✓	✓	✓
Speech Therapy	11	10		✓	✓	✓
Wannik **	19	40	4		✓	
YALP ***	55	135	7	✓	✓	
Multiple interventions		10				

*Not daily in one secondary school **Withdrawn and in class ***Daily in one school

Table 28 provides an overview of the numeracy intervention programs collected by the questionnaire. In contrast to the literacy programs, about half are delivered on a 1:1 basis, but the majority are still withdrawn and contact with the student occurs mostly on a daily basis. Once again, different schools deliver the same or similar programs (e.g. YALP) in different ways.

Table 28: Participants and modalities of student numeracy intervention programs

Program Name	N (P-2)	N (3-10)	N (Schools)	1:1 teaching	Withdrawn	Daily
Classroom Support	12	45		?		?
Hume Numeracy Intervention Pilot	37	9	8	✓	✓*	✓
Hume Numeracy Intervention, Small Group	0	15			✓	✓
Hume Numeracy Intervention, BOEHM Concepts	20	0	1		✓	✓
Individualised Learning Plans	0	7	1			✓
Lighting a Candle	0	17			✓	✓
Numeracy Recovery	0	9			✓	
Other	0	7		?	?	?
Tutoring	6	18		?	?	?
Wannik Tutoring	9	8	2		✓	✓***
YALP	18	98	5	✓	✓**	✓****
Multiple interventions		17				

*Withdrawn for teacher training **Conducted in the classroom in two schools ***Daily in one school ****Daily in two schools

The data provided by schools did not provide a clear picture of the target groups for these intervention programs apart from those that are well known. For example, Reading Recovery targets students who are 'well below.' The Hume Number Fluency Intervention Program focuses on the next point of learning for a student and has been used for students 'well below' as well as those who are 'just below' expected level of numeracy achievement. During the in-depth study we learned that at least one secondary school was instructed by the DEECD following a formal school review to reorganise their classes according to student achievement (streaming or setting). This approach to differentiating teaching to address student learning needs is not supported in the research literature for language or mathematics. Findings regarding growth in reading and number achievement reported in Chapters 5 and 6 and for individual secondary schools in Appendix I support previous studies of the impact of streaming.

It is very surprising given the large number of ESL students in the Pilot schools, that only one school nominated ESL as an intervention program. Also you would expect many more of the new arrival students to be participating in an ESL program. This finding indicates that teachers and leaders do not categorise support for ESL students as intervention even though these students are usually withdrawn to attend these programs.

A number of intervention programs are designed especially to target Koorie students. These include Individual Learning Programs, Wannik Tutoring and YALP which are used to support Koorie learners of literacy and numeracy. Individual Learning Programs and Wannik Tutoring are elements of the DEECD policy for Koorie learners. YALP is an independent program that has been funded independently of the Pilot by DEECD. During the in-depth study teachers reported that they had prepared Individual Learning Programs for their students but they were not being implemented in the way intended because the parent or guardian had not met with the teacher and student to discuss and reach agreement about the plan.

Principals during our consultation at network meetings were concerned that there were insufficient funds to meet the demand for intervention programs, especially for students who were 'well below' the

expected level of achievement. The number of students who participated in more than one intervention program (multiple interventions in Tables 27 and 28) is evidence of this demand. In some instances these students participated in more than one program in the same period while other students moved from one intervention program to another during the year.

While individual schools have developed their own intervention program or forms of classroom support, in general the Regional Offices of DEECD and Regional Literacy and Numeracy Leaders or consultants provided intervention frameworks and programs for literacy and numeracy. Particular examples include the Hume Number Fluency Intervention Program, the Hume Literacy Intervention Program and Lighting the Candle (a numeracy program implemented in the Wyndham Network). Descriptions of particular literacy and numeracy intervention programs are provided in Tables 29 and 30.

Table 29: Literacy Intervention Programs

Early Language and ESL Programs
Early Language Programs and ESL programs target students who are new arrivals to the country or speak English as a second language, or both. Programs typically focus on the domains of speaking, listening and writing, and attempt to build vocabulary, concepts and oral language to support students in engaging with classroom work. Different schools deliver these programs in differing ways, including whether students are withdrawn and the amount of time investment, but programs usually involve staff additional to the classroom teacher.
Hume Literacy Intervention Strategy
This literacy intervention strategy was not a particular intervention program. Rather additional funds were provided to targeted secondary schools and small rural schools to conduct a relevant program to meet their students' needs. These included Reading Recovery and YALP.
Individualised Learning Plans
Reference - http://www.education.vic.gov.au/studentlearning/programs/lsp/mod32indlearnplan.htm . Module 3.2 of the language support program. Individual learning plans (or ILPs) are a common form of literacy and numeracy intervention. They usually follow a consistent process in developing and delivering a plan tailored to address the unique learning needs of the student concerned. A plan begins with identifying the needs of the student by profiling the student's strengths, skills, learning preferences and abilities. This may involve liaison with others who have knowledge of the student's educational profile, such as parents, other teachers or psychologists. After this profile has been developed, teachers can then utilise their knowledge of curriculum to plan learning activities and desired outcomes for the student. Short and long-term inclusive, achievable goals are set that detail the desired learning progress, which are then monitored and evaluated. If goals seem inappropriate or unachievable, goals and curriculum are flexibly altered. ILPs are sometimes taught outside of school hours, and aim to maximise the students' best time, place and style of learning.
Making a Difference
This literacy intervention program was run in years 3-6 at Bourchier St Primary School, located in the Shepparton Network of the Hume Region.
Oral Language
Reference - Lukin, C., & Estraviz, L.(2010). The relationship between severe oral language impairment and progress with reading intervention. *Australian Journal of Language & Literacy, 33(2),* 126-133. Oral language is an intervention that addresses difficulties in oral communication development. As numeracy is also taught orally, this intervention addresses development in both literacy and numeracy. Oral language interventions can include, but are more than, phonology and reading skills; they often also focus on vocabulary, comprehension, inference generation and narrative skills. They target students with language receptive impairment, usually resulting from a lack of underlying oral skills that facilitate the interpretation of incoming verbal

information.

Reading Recovery

Reference – Reynolds, M., & Wheldhall, K. (2007). Reading recovery 20 years down the track: looking forward, looking back. *International Journal of Disability, Development and Education*. *54(2).* 199-223.

Reading Recovery (RR) is a long-standing literacy intervention program, first developed in New Zealand in the 1970s. The program is delivered to the lowest performing children after 1 year of school, who are identified using the Observation Survey of Early Literacy Achievement. Teachers trained in RR work with children on a 1:1 basis, usually for 30 minutes daily, and undertake literacy tasks including re-reading one or more previously introduced texts, identifying letters and words, writing a story, hearing and writing sounds in words, cutting the story up and then reassembling and reading it, introducing a new book, and reading the new text. RR is a very well established and long-standing intervention program, with a relatively strong evidence base indicating it accelerates student achievement above matched controls.

Speech Therapy

Reference - Ballantyne, Angela O.; Spilkin, Amy M.; Trauner, Doris A. *Language, Speech & Hearing Services in Schools*, Jul2007, Vol. 38 Issue 3, p182-189

Speech Therapy is an intervention used to address severe speech difficulties. Students are often assessed as requiring speech therapy by the teacher, in conjunction with screening tests such as the Clinical Evaluation of Language Fundamentals, or CERN (Ballantyne, Spilkin & Trauner, 2007). Speech Therapy is tailored to address the unique underlying difficulties experienced by the student, and often has a strong emphasis on pronunciation.

Wannik Tutoring

Reference- http://www.education.vic.gov.au/about/directions/wannik/programsandreforms/tutorialprogram.htm

Schools with Koorie students in Years 2-10 receive funding for the Wannik Tutorial Program for each Koorie student with a teacher judgement assessment of D or E in one or more dimensions of English or mathematics. Schools must obtain consent of one parent or guardian before the student can participate in the program. Training is provided for tutors. Koorie learning coaches and liaison officers support classroom teachers to obtain consent from parents and to train tutors. The tutoring program should follow the Individual Learning Plan for the student and normally occurs in the classroom. Schools in the Pilot have withdrawn students.

Yachad Accelerated Learning Program (YALP)

Reference - YALP, http://www.yalp.org.au/

YALP was developed to support the literacy and numeracy learning of Indigenous students. Originally developed in Israel, this program has been trialed in a number of Australian states in various Indigenous communities. Koorie Educators and YALP tutors conduct this one-to-one withdrawal intervention. Its key features are short, sharp sessions (10 minutes), repetition (3-4 times per week), focused on student needs and use of culturally appropriate resources and norms of communication. During 2010 two schools conducted this program in the classroom under the supervision of the classroom teacher.

Table 30: Numeracy Intervention Programs

Hume Numeracy Intervention Program
Reference – *Hume Numeracy Intervention Training Program*, Hume Region, 2009; Waters, Mark; Montgomery, P. Teaching 'At Risk' Students: Hume Numeracy Intervention Program, MAV Annual Conference, 2010. This Hume Region program has been developed and trialled for students from Prep to Year 8 for students 'at risk' in number (and structure). There are two components: the intervention program framework and the training and professional learning program for teachers. Teachers use the *Hume Number Fluency Assessment Interview* and the *Hume Number Fluency Framework* to identify the student's next point of learning (zone of proximal development). Teachers closely match number fluency tasks to student strengths and needs, use high effect scaffolding techniques when teaching and use effective prompts for building student independence. During training the teacher works with a 'case study' student in a one-to-one withdrawn session each week and the student practises using the number fluency task in the classroom for 15 minutes every day for a week until the next session.
Lighting a Candle
Reference – Sullivan, Peter; Gunnigham, Sue; Glover, Lucy. Lighting a Candle: A strategy for supporting students who have fallen behind in the learning of mathematics. Unpublished paper. Small groups of students are withdrawn from a non-mathematics lesson with the purpose of providing some preliminary information on the upcoming mathematics topic prior to their participation in the classroom mathematics lesson. In each session the trained tutors highlight and familiarise students with the vocabulary to be used in the next mathematics lesson, use questions to focus students' attention on relevant concepts and to resurrect prior knowledge, and trial the sorts of activities for the upcoming lesson. This intervention program was originally developed for Indigenous students in remote locations and has been implemented in three primary and two secondary schools in the Wyndham Network with the support of the regional numeracy coach and the RNL.

7.3.2 Impact of student literacy intervention programs

Growth in reading achievement for students (years 3-10) participating in intervention programs is shown Table 31. It appears to be greater than the expected level for the six months from March to September 2010 for the 309 students participating in interventions but it is not significantly greater (most likely because of the high standard deviation, that is, diversity in growth recorded for students in years 3-10). The findings do however show that participation in a literacy intervention program during 2010 did have the effect of improving achievement for 169 of these students who completed literacy assessments in 2009, as the level of growth was greater in this period than for the previous two six month periods for these students.

Refugee and ESL students benefited the most from participating in a literacy intervention program since they recorded growth significantly greater than the expected level for the six-month period.

The higher participation by male students in literacy interventions is to be expected given the significant different in achievement favouring females (see Section 6.6 and Figures 32 & 33). The literacy intervention programs have enabled both male and female lower achieving students to achieve expected levels of growth for March to September. The literacy intervention programs have therefore not had an impact on closing the gender gap in reading achievement.

Table 31: Growth in reading achievement for students in literacy intervention programs in 2010

Cohort	Yr level 2010	N	Mar09 – Sep 09 Mean Growth	Mar09 – Sep 09 Sig > 0.25	Sept 09-Mar10 Mean Growth	Sept 09-Mar10 Sig > 0.25	Mar 10-Sept 10 Mean Growth	Mar 10-Sept 10 Sig > 0.25
All	3-10	309	NA		NA		0.3031	■
All	4-10	169	0.2314	■	0.1938	■	0.3036	■
Low SES	3-10	227	NA		NA		0.2817	■
Koorie	3-10	69	NA		NA		0.2319	■
Refugee	3-10	37	NA		NA		0.5000	▲
ESL	3-10	82	NA		NA		0.4329	▲
Females	3-10	136	NA		NA		0.2901	■
Males	3-10	172	NA		NA		0.3151	■

NA = not applicable; these students not included in the sample for these periods

The most effective literacy intervention program was *Making the Difference*, a program conducted at one non-targeted primary school in the Shepparton Network (see Table 31). The Hume Literacy Program also resulted in a high rate of growth in reading achievement for students.

Table 32: Growth in reading achievement by literacy intervention program

Intervention Program	Yr level 2010	Mar 10-Sept 10 N	Mar 10-Sept 10 Mean Growth	Mar 10-Sept 10 Sig > 0.25
All	3-10	309	0.3031	■
Hume Literacy Intervention	3-10	47	0.4011	■
Making the Difference	3-10	25	0.5080	▲
YALP	3-10	104	0.2308	■

Growth in reading achievement for students participating in small group intervention programs was greater than for those participating in one-to-one intervention programs (mean growth=0.357 compared to 0.229) and was statistically significant ($F=5.146$, $p<0.05$).

Daily participation in a literacy intervention was also more effective than less frequent participation (mean growth=0.439 compared to 0.274). The difference was statistically significant ($F=13.206$, $p<0.01$).

Growth in achievement for students participating in programs conducted in the classroom was greater than for participants in withdrawal programs (mean growth=0.361 compared to 0.28) but this finding was not statistically significant.

7.3.3 Impact of student numeracy intervention programs

Growth in number achievement for students (years 3-10) participating in intervention programs during 2010 is shown Table 33. Growth in number achievement is greater than the expected level for March to September 2010. For the smaller cohort of intervention students we could track since the beginning of

the Pilot, growth was greater in the last six months than for the previous six months but not as great as for the first six months from March to September in 2009. Hence participation in the intervention program during 2010 did not have as great an impact on achievement as did their learning experiences in the previous year. We have not attempted to determine whether these students also participated in a numeracy intervention program during 2009.

Each of the disadvantaged cohorts of students who participated in a numeracy intervention program benefited. Growth in number achievement was significantly greater than expected growth for the low SE and Koorie participants. Growth for refugee and ESL participants was also higher than the expected growth.

There were more female than male students participating in numeracy interventions as expected given the difference in achievement favouring male students in the primary years (see Section 6.6 and Figure 19). The numeracy interventions programs especially benefited male students as their growth in achievement was significantly greater than the expected level. Hence the numeracy intervention programs did not make an impact on closing the gender gap in achievement and may have contributed to widening the gap.

The most effective numeracy intervention program was the *Hume Numeracy Intervention Program* since students achieved significantly greater than expected growth. *Lighting a Candle* also recorded a high growth as did 'Classroom Support.'

Table 33: Growth in number achievement for students in numeracy intervention programs in 2010

Cohort	Yr level 2010	N	Mar09 – Sep 09		Sept 09-Mar10		Mar 10-Sept 10	
			Mean Growth	Sig > 0.25	Mean Growth	Sig > 0.25	Mean Growth	Sig > 0.25
All	3-10	208	NA		NA		0.3310	▲
All	4-10	83	0.3265	■	0.0651	▼	0.2614	■
Low SE	3-10	154	NA		NA		0.3334	▲
Koorie	3-10	50	NA		NA		0.3980	▲
Refugee	3-10	21	NA		NA		0.3952	■
ESL	3-10	52	NA		NA		0.3365	■
Females	3-10	116	NA		NA		0.3103	■
Males	3-10	92	NA		NA		0.3571	▲

NA = not applicable; these students not included in the sample for these periods

Table 34: Growth in reading achievement by numeracy intervention program

Intervention Program	Yr level 2010	Mar 10-Sept 10 N	Mean Growth	Sig > 0.25
All	3-10	208	0.3310	▲
Hume Numeracy Intervention	3-10	21	0.4190	▲
Lighting a Candle[9]	3-10	14	0.3571	■
YALP	3-10	77	0.2442	■
Classroom Support	3-10	43	0.3558	■

Withdrawal programs were more effective than classroom based numeracy interventions (mean growth =0.381 compared to 0.278) and this difference was statistically significant ($F=4.578$, $p<0.05$). The Hume Numeracy Intervention Program was designed to be conducted in the classroom but during the Pilot, while teachers were engaged in training, the program was conducted outside the classroom.

Daily participation in a numeracy intervention was also more effective than less frequent participation (mean growth=0.35 compared to 0.304). The difference was statistically significant ($F=7.706$, $p<0.01$).

Small group numeracy intervention programs were also more effective than one-to-one numeracy intervention programs since growth in reading achievement was greater for this mode of intervention (mean growth=0.431 compared to 0.265) but the difference was not statistically significant.

7.4 Other factors in the multi-faceted approach

7.4.1 School and curriculum structures: 'Summer Slow-down'

The student achievement data collected during the LNPE show that student growth is much slower in the September to March period than it is in the March to September period. Students' growth slows down over the period September to March and in some instances even goes backwards. This is true for both literacy and numeracy at the school, network and pilot levels. And it is true also for all year levels but particularly evident in the transition from Grade 6 to Year 7 and also the transition from Year 9 to Year 10. Refugee and ESL students recorded the highest levels of growth from September to March matching expected levels in literacy and exceeding them in numeracy.

These achievement data were reported by the LNPE team to cluster professional learning teams where RNLs, NICs, network literacy and numeracy coaches, principals and other school-based leaders had an opportunity to engage in collaborative analysis of the data. In all forums the discussion centred on the pattern of 'slow-down' and this section of the report records the scope of the professional conversation about this across the cluster meetings.

Considering the long-term effect of this pattern there was widespread concern that over time, a little bit of slowing down at each year level would have a huge impact and this is backed up by the student achievement data from the VCAA *On Demand test* which indicates that the percentage of 'at risk' students increases from less that 20% at Year 4 to more than 50% at Year 9. Extrapolating from this

[9] Five schools from the Wyndham Network implemented this program, however only one school provided data regarding students participating in this program.

observation groups noted that if growth is not consistent over a year then 0.25 VELS growth for the March to September period is not OK. Leaders wondered whether they should start to expect 0.35 VELS growth over Terms 2 and 3 but realised that even if this was achieved students might stay on track achieving 0.5 over a year but not 'close the gap' with higher socio-economic school communities.

Across the Pilot, surprise, realisation and concern led to questions:

> Why are students making significant growth in the March to September period?
> Why is there a drop in the September to March period?
> Is this a pattern for the state?
> Is this only in low SES schools?
> What different learning experiences exist in middle class families and schools?
> Do we lower our expectations after the initial motivation/enthusiasm of a new group of students?
> What's the down time?
> Do students forget over the holidays?

'Productive' or interrupted teaching time

People were quick to identify March to September as a 'productive teaching time'. They agreed that the bulk of teaching is done in Terms 2 and 3 with solid teaching time every day. On the other hand September to March was not considered an equivalent teaching and learning period. In fact many argued that "good instructional and explicit teaching drops off" during this period and that there is at least 10 weeks of disruption. A number of possible reasons for the slow-down were identified.

The most obvious interruption in the September to March period are two sets of school holidays including the long summer holiday which means a total of 7 weeks away from structured teaching and learning. Some argue that the only learning is at school and that there is no "value adding" at home during holidays while others see the value of learning different things during holiday periods. A common observation was that "Kids don't read over the holidays." This is seen as particularly bad for 'at risk' students such as those who have been doing Reading Recovery – they lose momentum. One teacher from a special school noted "It's the same at the Special School with walking…they are encouraged to walk at school and this isn't continued during breaks." This raises a question about what level of influence teachers and leaders have over learning and growth in literacy and numeracy achievement in the period from September to March.

Groups noted that over the fourth term there are numerous extracurricular activities such as sport, swimming, camps, concerts and transition that crowd out the core teaching time for literacy and numeracy. In secondary schools, students begin to disengage in November and December; numbers dwindle and there is higher absenteeism. One school noted that they have stopped the end-of-year activities program for Years 10 to 12 because of low participation and now only provide activities for Years 7 to 9. And there is evidence that these patterns of participation in secondary schools are starting to flow into primary schools.

Then there were the questions about December: How much explicit teaching occurs in the last month of the year? Do we teach until the end of Term 4? Many express the view that it is tougher to teach in December. Things are 'slowing down', and during this 'down time' some believe there is an absence of rigour. Teachers' focus shifts to writing reports and in some instances little or no teaching happens after reports are written. It is uncommon to teach up to the last day and one teacher commented: 'December is a write-off!' During December the school library is often recalling books and there is little or no access to literature until the beginning of the following year. Some schools, however, have insisted on lending books to students over the summer holidays and are putting this strategy into practice.

Following the holidays, February is shaped by transition. Here the process of starting up was identified as an issue for both students and teachers. For students, transition involves moving from one year level to the next with up to three weeks start-up in the new context – getting to know new teachers and the new environment and starting to feel comfortable and secure before it is possible to perform well. In the first weeks of transition into Year 7 the transition program is usually focused on well-being, making sure the students feel that they belong, with little explicit teaching before testing in March. In some schools Term 1 includes the camping program.

For teachers, Term 1 is about getting to know students, teaching about 'how we do business', setting up structures, conducting diagnostic testing. And if you are new to the school you don't have much time to find out what you need to know. People asked: "Are teachers hitting the ground running at the beginning of the school year?" "Is there a lack of continuity with staffing?"

Testing, reporting and trusting

There was also significant discussion about expectations, testing and reporting. In regard to the testing for the LNPE, people wondered if there might have been a difference in testing procedures from one testing period to the next, especially from 2009 to 2010 as the purpose of the testing had not been clear to all teachers and schools in the initial round of testing. There was also a question about the validity of the test instrument as it was possible that the online format may have been difficult for some children. However, the pattern of slowing down was also evident in other data collected for the same period.

More broadly, there was discussion about the lack of continuity as children move from one grade to another and the connection between testing at the end of one year and the testing conducted at the beginning of the next year. This was particularly obvious in the discussion about transition from Grade 6 into Year 7 and also identified as an issue for students and schools with high levels of student transience.

In a number of forums there was discussion about trusting the assessment data that are passed on from the previous year with many teachers reporting that the data did not seem to be accurate and that students were below the levels reported. This leads to the common practice of re-testing at the beginning of each year. The summer 'slow-down' might account for this but there was also a suggestion that if teachers do not trust the data then there may be a need to work out what data to collect send on with the student and then how to use the data that is passed on. Individual schools and clusters have begun to address this issue. The primary school reported that they conducted combined year level PLT meetings at the end and beginning of the school year to discuss the Term 4 assessment data. One network has developed a format and structure for passing assessment information from primary schools to secondary schools in the network to be implemented in 2010-2011.

Further questions related to the timing and scheduling of assessment, the value and use of different assessment tools and the timing of reporting. More specifically, and in some ways connected to the transition of children and data from one teacher to another, questions were raised about the purpose of and the value of testing right at the end of Term 4 and then testing early in Term 1.

Finally, people queried whether there was perhaps too much attention on assessment from February to May. There seemed to be a tension between teachers assessing students rather than teaching them and then on the one hand trying to prepare for NAPLAN and on the other trying to get to know their students.

New questions emerging in the conversations

At the end of each cluster conversation there was a heightened awareness about the inconsistent pattern of student achievement and groups began to think about what the next steps might be. There

were more questions than answers and everyone agreed this was an area for further action. Questions include:

> Are the data is telling us we need to be more focused in the September to March period?
> Are we not maximising the teaching and learning in this period?
> How can we create a strong focus so that everyone is learning through to December?
> Should we move away from 'chunking' 4 semesters to achieve one VELS level?
> Should we change the shape of the timetable to achieve two hours literacy and one hour of numeracy teaching for the whole year?
> Do we need to change teachers' practices?
> How could we change the process for ending the year and starting the year?
> What transition issues and processes do we need to consider more carefully?
> What do we need to do to acknowledge the impact of changes in staff every year?
> Do we need to rethink the timing of testing and the balance between testing and teaching (especially in Term 1)?
> How do we cross-reference these findings with other assessment data to validate these findings? (You need to have faith that the data are accurate before you can act on them.)
> Do we need to go back to the results for individual students (eg. on SPA) to identify the actual issues?
> Is the 'slow-down' caused by more than interruptions?
> How does something like the bushfires impact on children? How does depression and continuing evidence of the grief cycle influence learning?
> But it is not all about literacy and numeracy - aren't there are other things to be learned and experienced at school? Aren't there different kinds of learning?

Addressing these questions provides a real opportunity for further enhancing learning outcomes in low socio-economic school communities. Learning more about the confluence of school structural impediments and low socio-economic knowledge and culture may lead to enhanced growth in achievement during the summer months and hence over the whole year.

7.5 Key findings

Schools in each network with the lowest socio-economic school communities (that is highest mean SFO) coupled with high proportions of underachieving students received additional support through a regional literacy or numeracy coach, a network improvement consultant and/or additional funding to implement a literacy and/or numeracy intervention program. During 2010 many schools in the Pilot received additional funding through the DEEWR National Partnerships Program. As a consequence and because of the complex arrangements of financial and professional support for individual schools and clusters of schools it is difficult to attribute changes in achievement to particular interventions alone so the findings need to be interpreted with these complexities in mind.

Regional Coaches appointed to work with targeted schools and NICs contributed to effective collaborative networking at the school, cluster and network level for building teacher and leadership capacity and agency.

Targeting primary schools realised higher rates of growth in both reading achievement and number achievement but this strategy has not yet been successful in closing the gap in achievement between the target secondary schools and the non-target secondary schools with typically higher socio-economic school communities.

A wide range of student intervention programs was implemented in Pilot schools. Results concerning the relative effectiveness of intervention programs or modalities of these programs need to be

interpreted with caution since the data collected by questionnaire were often not complete and we believe that many non-target schools who did not reply to the questionnaire are also conducting intervention programs. Only one school nominated an ESL program as intervention.

Literacy intervention programs were most effective for refugee and ESL students and the numeracy intervention programs were most effective for Koorie students and students from low socio-economic families.

All student intervention programs supported students to achieve expected growth, and participation in a literacy intervention program enabled these students to improve on growth achieved in previous semesters. Further studies involving a larger sample of students is needed to confirm the positive impact of the particular intervention programs developed and trialled in Pilot schools.

The most effective student literacy intervention programs tended to be those conducted daily with small groups of students in classrooms. The most effective numeracy intervention programs were also conducted daily with small groups but outside the classroom. Further studies are needed to confirm these findings.

The multi-faceted approach, including particular student intervention programs, was found to be less effective in the period from September to March (Terms 4 and 1). Regional network leaders, principals and coaches discussed the data which provided evidence of a summer 'slow-down' in growth in student achievement for this period. They identified a range of questions regarding curriculum, teaching and assessment practices for further investigation by professional learning teams and networks.

8.0 Sustainability: Sustaining practice, sustaining reform

8.1 Introduction

In this chapter will discuss the factors that have facilitated and inhibited reforms and improvement in student outcomes.

The following evaluation questions focus the discussion:

> What factors facilitate or inhibit the effectiveness of implementation of the network approach to improving literacy and numeracy? How might implementation be improved across the networks and school sites?
> How effective is the network and Regional Network Leader model in supporting literacy and numeracy improvement across regions? What are the limitations and advantages of this model?
> What is the potential value of a multi-faceted approach to literacy and numeracy? (i.e. its impact on other elements of the school program, unintended influence of the pilots)
> What level of resourcing and support is required to support improvement in students' literacy and numeracy outcomes?

We will report on the data collected through the in-depth studies of schools, our meetings with principals and interviews with Regional Network Leaders, Network Improvement Coordinators and Coaches.

A model to describe the way in which the multi-faceted network approach has been successful in building leadership and teacher capacity and agency for improved literacy and numeracy learning will be presented in this chapter.

8.2 Sustaining effective practices and reforms: Facilitating factors

Implementing educational reform to improve literacy and numeracy across a large system of public schools is extremely complex and demanding. In Victoria, the network approach has been progressing through an establishment phase that has included the appointment of Regional Network Leaders and the introduction of appropriate programs, processes and communication. From a systemic point of view, networks have a set of functions that involve policy configuration, accountability mechanisms, funding arrangements and school improvement programs. The Victorian network also involves a group of practices arising from these functions that include professional learning, data gathering and analysis, intervention programs at the state, regional and school levels and the principle of leadership across the system. This reform agenda displays a 'top-down' methodology as a means of improving student learning outcomes.

To this stage, the network approach has received support from teachers, principals and regions alike, with each group exercising their own perspective. The level of involvement of classroom teachers may vary from region to region but professional learning is generally seen in a positive light. Regions understand their role in state policy implementation and see network organisation as means of alignment and achieving outcomes. Principals comment that networks can encourage schools to share their expertise and resources so that improvement is more wide-spread rather than being short-term. They report that the coordinated regional approach to building teacher capacity is an advantage with quality professional learning activities together with coaches and consultants providing important support. The systemic approach to instructional leadership is changing the role of principals with more proactive responsibilities. In this regard, whole school approaches assist a distributed leadership across staff resulting in a more common approach to meeting the differentiated need of individual students. Regional Network Leaders have been a central aspect of network implementation, are respected for their experience and guidance and are welcomed in classrooms on school visits.

A multi-faceted approach to literacy and numeracy reform seems more appropriate than a single strategy given the complexity and inter-relatedness of learning. That being said, a multi-faceted strategy must of course choose the different facets correctly and establish the means of exploring and refining the relationships between them. It these relationships are not balanced correctly, then a distorted picture of teaching and learning may emerge that is resistant to appropriate analysis and explanation. The different facets must also be open to local interpretation so that teachers can initiate change to curriculum programs to better engage student learning. A key advantage of the multi-faceted approach is that it conveys to practitioners the complexity of teaching and learning and how the intricate and compounded factors that impinge on all classrooms must be navigated. Rather than looking for simplistic solutions to complicated situations, the multi-faceted location demands sophisticated understandings and strategies that will include all participants. This is particularly significant when considering low socio-economic families and communities and how cultural ideas and issues can be incorporated across the curriculum.

Needless to say, a multi-faceted and network approach to improving literacy and numeracy will need to be supported by appropriate funding. Additional funding will be required over and above a single strategy. In general terms, federal funding is often directed at issues and projects not normally covered by state funding, or to support attention being given to a particular need that has been identified at a national level. The Disadvantaged Schools Program (DSP) set up by the Interim Committee of the Schools Commission in 1973 under the Whitlam Government established this principle. Currently, the Smarter Schools National Partnerships program provides considerable funding to states for specific purposes. Depending on the funding arrangements determined by state governments, federal funding ensures that a mix of state and federal funds constitute what is eventually available to schools. Federal funding has allowed the emphasis on low socio-economic communities to be implemented including the employment of regional and school-based coaches and such support is essential to assist the learning of all children from diverse backgrounds in Victoria. It should be expected that current total levels of funding will be continued and will be extended in future years to maintain necessary support for schools and to meet emerging learning needs of students.

8.3 Sustaining effective practices and reforms: Inhibiting factors

During the establishment phase of networks in Victoria, regions and schools will interpret arrangements to best meet local conditions including provision and constraints. Appropriate structures to enhance student learning will be considered involving teaching support and interventions, a range of leadership practices and a framework of policy arrangements as applied at the local level. Considerations of this type directed at meeting the learning needs of all children at each school encourage principals and teachers to develop a shared professional language of discussing student learning, of coming to an increasing awareness of the significance of low socio-economic culture and knowledge of local communities, of utilising data and research for ongoing learning improvement and to strengthen professionalism generally such as through professional learning teams. That is, schools work within policy frameworks and the integrity of professional judgment to improve curriculum in the interests of their students.

In terms of network impediments or constraints, it is difficult to have all schools adopting particular directions or frameworks immediately. Understanding and engaging educational complexity cannot be rushed or imposed and require ongoing systematic deliberation. There is a significant challenge in balancing teacher commitment to improve with the time and space required throughout the year or series of years. The demands on staff have increased and there is increased public and political pressure to demonstrate progress of a particular type. This requires that energy levels be maintained and that schools are able to build collegial and supportive ways of operating over time. Balancing the

needs and demands of a local school with that of system-wide expectations places considerable pressure on principals and teachers. Under these circumstances, the nature of guidance and leadership is crucial, to ensure that all participants are included, are respected for their contributions and that the high expectations demanded are not excessive. For networks to maintain commitment and focus will oblige appropriate levels of funding to be provided at the school level and ensure that support is generally available across the entire school.

Establishing and sustaining a multi-faceted and network approach across Victoria as a main vehicle to improve learning outcomes must be recognised as a complicated endeavour. At the heart of this approach is a view of teaching and learning that is comprehensive rather than narrow, that is inclusive rather than exclusive of differing cultures and world views and that allows for the construction and interpretation of knowledge as well as endorses participation with the significant ideas of society. Given the different understandings of literacy and numeracy that exist within the international profession and literature, it is vital that a balanced curriculum enables teachers and students to engage with these ideas, practices and languages so that a thorough investigation of principles, procedures and application can be undertaken. As principals and staff at different schools alter and as the various forms of support that are available also change, the shared understanding of literacy and numeracy may also vary. A multi-faceted and network organisation needs to take such constant educational and social change into account and be also capable of modification accordingly.

Particular attention of any approach to teaching, learning and educational provision in Victoria must include an emphasis on low socio-economic considerations. Schools located in working-class and lower socio-economic communities have an extremely complicated task in connecting the valued knowledge of the mainstream curriculum with the life experience of children and families. Delpit (2006) has described this role as ‘cultural brokerage’ presupposing that teachers need detailed understanding of local communities and can then build cognitive bridges between the areas of interest of school, home and child. This proposition raises the question as to whether the major influences on learning exist outside of a particular school, or inside particular schools and classrooms. Studies of ‘school effect ‘ (Marks, 2010) attempt to isolate such factors and determine which are more influential. In many respects, however, this is a false division, as very few teachers work in an intellectual vacuum where connections with what the child is assumed to know are not made with what the school wants the child to know. The sorts of insights into human experience offered, for example, by Shakespeare should be accessible to all, regardless of social class or parental income. Grappling with the complexities of our common culture is one of the main aspects of schooling. The role of the school is to deal with issues that are central to our culture. Various attempts have been made throughout the twentieth century to resolve the issue of how schools can amply and inclusively interact with culture. Multi-faceted and network approaches should be seen as a part of this tradition.

8.4 A model for sustainable improvement in literacy and numeracy achievement

Based on the above discussion, we now outline a conceptual model of network organisation for continuing improvement in literacy and numeracy. We began this evaluation with an understanding that ‘the network’ was a systemic conception – a group of geographically connected schools shaped by policy, accountability and funding. To this conception a set of practices – professional learning, data gathering and analysis and school improvement – had been overlaid with the goal of improving literacy and numeracy learning outcomes. This approach is depicted in Figure 28 below.

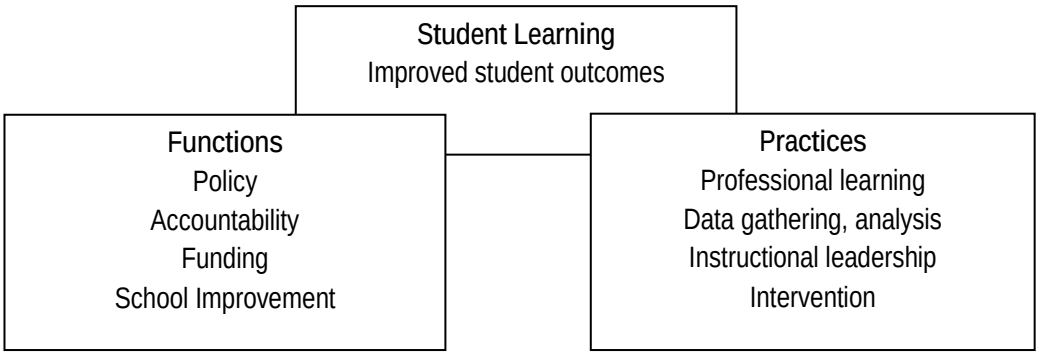


Figure 45: Systemic network concept

According to Giddens (1984), human activity takes place within a set of pre-determined arrangements and parameters that have been established by the foremost decision-makers of society. These decisions reflect the major political and economic directions of the time. Within Australia, a neoliberal emphasis on marketisation, privatisation, consumerism and efficiency has dominated the political agenda for many years (Chomsky, 1999). This trend has strongly influenced public education policy both in Australia and comparable countries. For example, the notion of 'effective schooling' (Teddile, 2000) is a neoliberal concept that accentuates education as commodity, the efficiency of teaching outcomes, the efficacy of site manager, professional development for employees and the prevalence of mission statements and organisational direction. From a systemic point of view, a network model of educational organisation will be broadly underpinned by similar perspectives.

Improving student outcomes is the professed overall goal of the Victorian network approach. This is to be achieved through coordination of policy at all levels, an accountability and improvement framework and appropriate funding mechanisms including state and federal programs. These central network functions are converted into implementation arrangements that include a heavy emphasis on national testing, professional learning programs for staff, instructional leadership for principals and intervention programs that can be initiated systemically or by schools. In discussing the features of modernity, Giddens notes how socio-political activity can be 'disembedded' from local contexts and interactions and be redistributed across time and space. His concept of 'space-time distanciation' generates two types of disembedding mechanisms which are called 'symbolic tokens' and 'expert systems.' Mass testing is an example of symbolic token where knowledge can be decided elsewhere, be disembedded from local experience and take on a life of its own disconnected from learners and culture. Giddens spoke of expert systems as forms of organisation and expertise that are used to manipulate large areas of social events and relationships that impact on citizens every day. Consideration of issues such as global warming, finance regulation, health statistics, media reporting all rely on mechanisms and technologies that disembed understanding from direct experience and rely upon acceptance of results. These features of modernity and economic and knowledge rationalisation can be clearly seen in Australian education policy.

Attempting to implement policy in an entirely top-down fashion no matter how congruent with need is rarely successful. This is because all humans possess 'agency' or the capacity to act within social systems and to effect change in the interests of particular groups of people and communities. In this regard, Giddens discussed what he called the 'reflexive monitoring of actions' whereby citizens can see action as either a means to reproduce or transform social relations and practices. This tendency has been detected in data from this study and is shown in Figure 29.

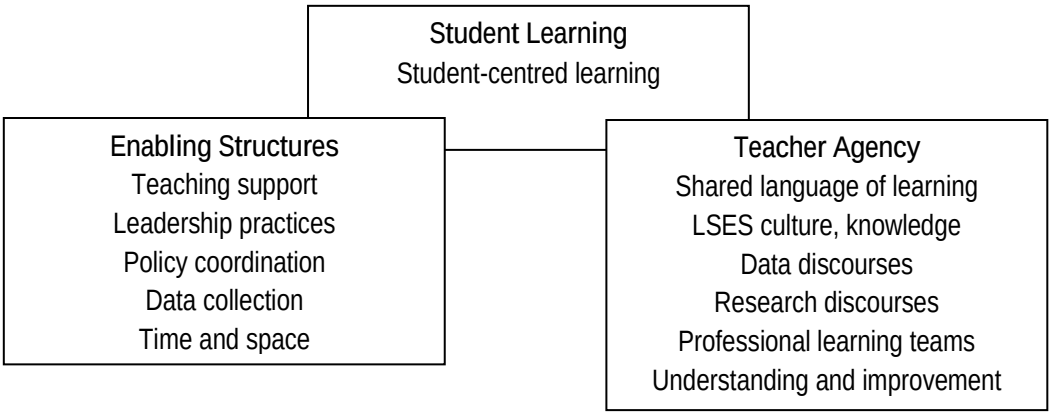


Figure 46: School network concept

At the school level, the function of networks is adjusted to ensure that the broad notion of student-centred learning is emphasised to meet the learning needs of all students. As a policy question, it is important to judge whether function and organisation encourage teacher change first as the basis of a renewed focus on teaching and student learning, or whether teacher action and demand at the school level in response to meeting student need drives reoriented policy direction. A balance between these two imperatives is required so that the school improvement process is not distorted. Thus we detect teacher agency impacting on systemic functions so that they enable this focus to be consolidated. Enabling structures are created so that teaching support is available to enhance teaching and learning whenever required, forms of distributed leadership are instituted that are collegial and collaborative recognising that all staff contribute to a situation of improved learning, external policy remains important but takes its place within a total effort and local context that demands interpretation and initiative, the nature of data is diverse including teacher monitoring of progress in various ways and is primarily to inform action at the school level for curriculum change and, in connecting with Giddens' work, time and space are seen as being more local rather than dispersed. This ongoing teacher agency and reflexivity of action tends to produce quality engagement with a range of professional discourses and actions at the school level. A shared language of teaching and learning evolves from a shared experience and collaborative interactions encourage the open expression of ideas, understandings and proposals including the continuing conversation of data and judgments. Organisational structures are altered and created to suit local circumstances with professional learning teams providing avenues for the discussion of progress and possibilities for further enhanced learning and improvement.

As a specific example, we began the evaluation thinking about 'interventions' as student focused, targeted intervention programs such as Reading Recovery designed to improve student learning outcomes. While a small number of this kind of intervention programs is evident in Pilot schools, the evaluation team now believes that intervention might be better understood as a multi-faceted approach made up of numerous and varied interventions at different levels in a school-centred conception of network. We came to understand that taking a networked approach was not just a systemic concept but also a web of enabling structures and teacher agency that shaped student learning. The concept of an evolving school-level network described here can be theorised as an elaboration of the duality of structure and agency outlined by Giddens through an incorporation of the views of Habermas. In his life-long project regarding the development of a critical theory of society, Habermas (1987) attempted to locate knowledge, reason and emancipation in a process of language and communicative action. In a communicative model of human action, participants interact and work towards mutual understanding

rather than attempting to impose their viewpoints on others. As well as suggesting a set of criteria by which such communication takes place, Habermas proposes a movement towards rational discourse and will-formation within the context of agreed norms and values. The theory of communicative action is therefore essentially democratic in reaching consensus respecting the viewpoints of all involved. It cannot operate in a top-down manner where ideas and requirements are imposed.

Theorising the communicative nature of networks as they evolve at the school level is in accord with the emphasis of teachers on meeting student learning need. Teachers and networks must deal with competing pressures and tensions of external policy and accountability as mentioned above, but at the same time, exercise professional integrity in assisting every child with their learning. Structures that imbalance or distort these arrangements such as an over-emphasis on mass testing will need to be constantly adjusted. Network structures must enable action to be taken rather than disable teacher initiative and understanding. Communicative action is not merely teams of people coming together to consider events but is conceptualised as a means of reaching consensus on how to move forward together in the interests of progress. Language is not merely a form of expression but a signifier of respect and trustworthiness, where meaning is explored and different possibilities exposed. In this way, genuine 'policy' emerges from the reality of practice referenced by system considerations. A network structure that seeks democratic and communicative knowledge and understanding by principals, teachers and students alike, will form the basis of challenging, conceptual and insightful learning.

9.0 Conclusion and Recommendations

The purpose of this chapter is firstly to give a brief overview of the key findings from the Literacy and Numeracy Pilot Evaluation and then to suggest a small number of key recommendations based on the key findings.

9.1 Key findings of the Literacy and Numeracy Pilot Evaluation

The following key findings have been identified on the basis of the quantitative and qualitative evidence collected during the Literacy and Numeracy Pilot Evaluation.

9.1.1 Improved student learning outcomes

The LNP in Victorian government schools has led to improved learning outcomes in student literacy and numeracy for students in low socio-economic school communities. Improved learning outcomes are most evident in the primary year levels and for ESL and refugee students.

The design of the Pilot evaluation did not allow for comparison of growth in achievement during the period of the Pilot from March 2009 to September 2010 with growth in achievement for the period prior to the implementation of the Pilot nor with non-Pilot low socio-economic school communities. Comparisons made using NAPLAN data found that growth in achievement for the literacy and numeracy domains students in the primary year levels of the Pilot was greater than growth in achievement for all Victorian primary students.

Improvements in learning were observed for secondary students for particular periods or for particular cohorts of students but these were not sustained over the two years of the Pilot or consistent across the disadvantaged cohorts of students or networks of schools.

9.1.2 Student-centred, multi-faceted network

The success of the multi-faceted networks in the Literacy and Numeracy Pilot has been achieved through *structural and practical connections* focused on student-centred learning.

The multi-faceted and interconnected structure is shaped by:

Whole school approaches;
A network of educators in leadership positions (including network-based and school-based leaders and coaches);
A network of professional learning teams;
A commitment to building teacher and leadership capacity;
The collection, analysis and use of diverse student data.

These connected and enabling structures support:

Teaching practices;
Leadership practices;
Policy coordination;
Data collection;
The allocation of time and space for building capacity.

Within these connected and enabling structures educators are engaged in:

Building a shared language of learning based in experience;
Focused discourses about culture, knowledge, data and research;
Working collaboratively;
Seeking a deeper understanding to inform improvement.

Within these connected and enabling structures students are engaged in:

Using meta-language to describe their learning and express their ideas;
Developing independence as learners by taking risks, making choices and monitoring their own progress.

9.1.3 Parents and community

Apart from several notable exceptions, there is little evidence that parents and the wider community are included in the multi-faceted network approach to improving literacy and numeracy outcomes for students. Further, there is evidence that parents and teachers 'inhabit their own castles' and that there is a substantial gap in understanding and an absence of collaboration that, if addressed, might lead to improved student learning outcomes in literacy and numeracy in low socio-economic communities.

9.1.4 Student intervention programs

In general students participating in a student intervention program did achieve expected or higher than expected growth in achievement for the assessment period of their participation. Findings suggest that some intervention programs or modalities of intervention may be more successful than others although there is little evidence to suggest that the intervention programs alone contribute to improved outcomes or sustained student learning outcomes. Teachers are most positive about student intervention programs that enhance their capacity to plan for sustained learning for these students in the classroom.

9.1.5 Summer 'slow-down'

There is an annual 'stepped' pattern in literacy and numeracy achievement. At all year levels, and in both literacy and numeracy, students make most progress in the March to September period and their growth in achievement slows down in the September to March period.

9.2 Recommendations

The following key recommendations are directly linked to the findings and provide a framework for sustaining successful structures and practices and extending and enhancing the work of the pilot to further improve literacy and numeracy outcomes for students in low socio-economic communities.

The first recommendation recognises the success of the multi-faceted network approach and seeks to build on this structural and practical foundation. The three subsequent recommendations suggest ways in which these successful network practices might be extended: firstly by adding community-based approaches to the existing network and school-based approaches to improvement; secondly by focusing not only on literacy and numeracy but also on culture, knowledge and learning in low socio-economic communities; and finally by engaging in collaborative inquiry into the patterns of summer 'slow-down' and using the deeper understanding to identify new approaches and build capacity to support student learning during this period.

9.2.1 Build on the networked approaches to improvement

Allocate funding to build on the successes of the multi-faceted network approach to improving student literacy and numeracy outcomes by maintaining, strengthening and extending:

the network of leaders and coaches and providing new opportunities to build leadership capacity across the network;
the network of professional learning teams in order to build teacher capacity through discussion, collaboration and inquiry;

the collection and use of diverse data taking an evaluative approach to understanding the purpose, use and timing of different data collection activities.

9.2.2 Incorporate community-based approaches to improvement

Initiate and incorporate a new dimension of the networked approach to include parents and the broader community in improving literacy and numeracy outcomes. Using what has been learned in this evaluation a networked approach to including parents and the wider community would involve:

Creating leadership positions and building leadership capacity
Regional/Network Parent Leader
Regional/Network Coach (Parents and Community)
School-based Coach (Parents and Community)
Building capacity for parents and other members of the community
Network/Cluster Parent Learning Teams (facilitated by network-based coach)
School-based Parent Learning Team (facilitated by school-based coach)
Using data to inform planning
Parent opinion surveys
Informal feedback collected
Taking a whole-community approach (that would extend the whole school approach)
Parents' knowledge and expertise is valued and included
Parents are involved in the process of developing a shared understanding about improving literacy and numeracy outcomes for students
Parents are involved in understanding and analysing data
Where parents learn about consistent approaches through conversation and collaboration with teachers

9.2.3 Extend building of leadership and teacher capacity through PLTs

Professional Learning Teams (PLTs) have proved to be significant in building leadership and teacher capacity and shaping new practices. The network of PLTs provides multiple opportunities for building capacity in regards to three emerging issues:

Seeking a deeper understanding about culture, knowledge and learning in low socio economic communities;
Gaining a deeper understanding about the pattern and possible responses to summer 'slow-down';
Building capacity of all teachers to integrate literacy and numeracy across the curriculum.

Seeking a deeper understanding about culture, knowledge and learning in low socio-economic communities

The LNP has employed an explicit focus on literacy and numeracy. This has involved literacy and numeracy leadership, developing teachers' capacity in teaching literacy and numeracy, collecting data about literacy and numeracy and taking a whole-school approach to improving student learning outcomes in literacy and numeracy.

The next step is to extend the focus on literacy and numeracy and make explicit connections between literacy and numeracy and learning in low socio-economic communities.

In the same way that it is important to gain a deeper conceptual understanding about literacy and numeracy and strategies for improving practice, it is important to:

develop a deeper understanding about cultures and funds of knowledge in low socio-economic communities; and
use this understanding to rethink and refine curriculum and pedagogies in order to further improve learning and achievement in low socio-economic communities.

Using what has been learned in this evaluation a successful approach would include:

supporting leaders to gain a deeper understanding about culture and knowledge in low socio-economic communities;
creating opportunities for leaders and teachers to work collaboratively in PLTs to deepen their understanding about culture and knowledge in low socio-economic communities and build their pedagogical capacity to improve learning in low socio-economic communities;
collecting and using data about learning in low socio-economic communities;
taking a whole-school/community approach to improving student learning outcomes in low socio-economic communities.

Gaining a deeper understanding about the pattern and possible responses to summer 'slow-down'

Use the network of PLTs to:

Collect further data and gain a deeper understanding about the pattern/s of summer 'slow-down';
Research and establish what is already known about patterns of summer 'slow-down' including any pedagogical (or other) practices that have been employed across terms, across holidays or where literacy and numeracy have been incorporated into extra-curricula activities;
Use the new knowledge (from data collection and research) to make connections and build capacity.

Building capacity to integrate literacy and numeracy across the curriculum

While there is substantial evidence of specific daily literacy and numeracy blocks in primary schools and emerging evidence of this practice in secondary schools there is less evidence of the integration of literacy and numeracy with other areas of the curriculum. Therefore it is recommended that PLTs be used as a forum for:

building the capacity of teachers to recognise opportunities for integrating literacy and numeracy into all learning areas other aspects of school activity;
building the capacity of all teachers in all year levels to teach literacy and numeracy, for all students.

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Appendices

The appendices are included in an attached document.